

SEATTLE GENETICS INC /WA
Form 424B5
February 01, 2011
Table of Contents

**Filed Pursuant to Rule 424(b)(5)
Registration No. 333-159457**

The information in this preliminary prospectus supplement is not complete and may be changed. A registration statement relating to these securities is effective. This preliminary prospectus supplement and the accompanying prospectus are not an offer to sell these securities, and we are not soliciting offers to buy these securities, in any state or other jurisdiction where the offer or sale is not permitted.

SUBJECT TO COMPLETION, DATED FEBRUARY 1, 2011

PROSPECTUS SUPPLEMENT

(to Prospectus dated May 22, 2009)

Shares

Common Stock

We are offering _____ shares of our common stock. Our common stock is listed on The NASDAQ Global Select Market under the symbol SGEN. On January 31, 2011, the last reported sales price of our common stock on The NASDAQ Global Select Market was \$16.39 per share.

Investing in our common stock involves a high degree of risk. Please read **Risk Factors** beginning on page S-10 of this prospectus supplement and in our Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2010, which has been filed with the Securities and Exchange Commission and is incorporated by reference in this prospectus supplement and the accompanying prospectus.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus supplement or the accompanying prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

	PER SHARE	TOTAL
Public Offering Price	\$	\$
Underwriting Discounts and Commissions		
Proceeds to Seattle Genetics before expenses		

Entities affiliated with one of our directors and principal stockholders, Felix Baker, have indicated an interest in purchasing up to an aggregate of approximately 18 percent of the common stock offered in this offering at the price offered to the public. Because these indications of interest are not binding agreements or commitments to purchase, any or all of these entities may elect not to purchase any shares in this offering, or the underwriters may elect not to sell any shares in this offering to any or all of these entities.

Delivery of the shares of common stock is expected to be made on or about February _____, 2011. We have granted the underwriters an option for a period of 30 days to purchase up to an additional _____ shares of our common stock solely to cover overallocments. If the underwriters exercise the option in full, the total underwriting discounts and commissions payable by us will be \$ _____, and the total proceeds to us, before expenses, will be \$ _____.

Joint Book-Running Managers

Jefferies

J.P. Morgan

Co-Lead Managers

Leerink Swann

RBC Capital Markets

Co-Managers

Needham & Company, LLC

William Blair & Company

Oppenheimer & Co.

ThinkEquity LLC

Prospectus Supplement dated February , 2011

Table of Contents

Table of Contents

	Page
Prospectus Supplement	
<u>About this Prospectus Supplement</u>	S-ii
<u>Prospectus Supplement Summary</u>	S-1
<u>Risk Factors</u>	S-10
<u>Forward-Looking Statements</u>	S-13
<u>Use of Proceeds</u>	S-14
<u>Dilution</u>	S-15
<u>Material U.S. Federal Income and Estate Tax Consequences to Non-U.S. Holders</u>	S-16
<u>Underwriting</u>	S-19
<u>Notice to Investors</u>	S-22
<u>Legal Matters</u>	S-25
<u>Experts</u>	S-25
<u>Where You Can Find More Information</u>	S-25
<u>Information Incorporated by Reference</u>	S-25
	Page
Prospectus	
<u>About this Prospectus</u>	1
<u>Risk Factors</u>	1
<u>Forward-Looking Statements</u>	1
<u>Use of Proceeds</u>	2
<u>Description of Capital Stock</u>	3
<u>Validity of Common Stock</u>	6
<u>Experts</u>	6
<u>Where You Can Find More Information</u>	6

You should rely only on the information contained in or incorporated by reference in this prospectus supplement, the accompanying prospectus and in any free writing prospectus that we have authorized for use in connection with this offering. We have not, and the underwriters have not, authorized anyone to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely on it. We and the underwriters take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. We are not, and the underwriters are not, making an offer to sell these securities in any jurisdiction where the offer or sale is not permitted. You should assume that the information appearing in this prospectus supplement, the accompanying prospectus, the documents incorporated by reference in this prospectus supplement and the accompanying prospectus, and in any free writing prospectus that we have authorized for use in connection with this offering, is accurate only as of the date of those respective documents, regardless of the time of delivery of those respective documents. Our business, financial condition, results of operations and prospects may have changed since those dates. You should read this prospectus supplement, the accompanying prospectus, the documents incorporated by reference in this prospectus supplement and the accompanying prospectus, and any free writing prospectus that we have authorized for use in connection with this offering, in their entirety before making an investment decision. You should also read and consider the information in the documents we have referred you to in the sections of this prospectus supplement entitled **Where You Can Find More Information** and **Information Incorporated by Reference**.

Table of Contents

About this Prospectus Supplement

This document is in two parts. The first part is this prospectus supplement, which describes the terms of this offering of common stock and also adds to and updates information contained in the accompanying prospectus and the documents incorporated by reference into this prospectus supplement and the accompanying prospectus. The second part, the accompanying prospectus dated May 22, 2009, including the documents incorporated by reference therein, provides more general information. Generally, when we refer to this prospectus, we are referring to both parts of this document combined. To the extent there is a conflict between the information contained in this prospectus supplement, on the one hand, and the information contained in the accompanying prospectus or in any document incorporated by reference that was filed with the Securities and Exchange Commission, or SEC, before the date of this prospectus supplement, on the other hand, you should rely on the information in this prospectus supplement. If any statement in one of these documents is inconsistent with a statement in another document having a later date—for example, a document incorporated by reference in the accompanying prospectus—the statement in the document having the later date modifies or supersedes the earlier statement.

All references in this prospectus supplement and the accompanying prospectus to Seattle Genetics, the Company, we, us, our, or similar references refer to Seattle Genetics, Inc., and its wholly-owned subsidiary, except where the context otherwise requires or as otherwise indicated.

This prospectus supplement, the accompanying prospectus, and the information incorporated herein and therein by reference includes trademarks, trade names and service marks owned by us or other companies. Seattle Genetics® and are our registered trademarks in the United States. All other trademarks, trade names and service marks are the property of their respective owners.

S-ii

Table of Contents**Prospectus Supplement Summary**

*This summary highlights certain information about us, this offering and selected information contained elsewhere in or incorporated by reference into this prospectus supplement. This summary is not complete and does not contain all of the information that you should consider before deciding whether to invest in our common stock. For a more complete understanding of our company and this offering, you should read and consider carefully the more detailed information in this prospectus supplement and the accompanying prospectus, including the information incorporated by reference in this prospectus supplement and the accompanying prospectus, and the information included in any free writing prospectus that we have authorized for use in connection with this offering. If you invest in our common stock, you are assuming a high degree of risk. See *Risk Factors* in this prospectus supplement beginning on page S-10 and in the documents incorporated by reference into this prospectus supplement.*

Company Overview

Seattle Genetics is a clinical stage biotechnology company focused on the development and commercialization of monoclonal antibody-based therapies for the treatment of cancer and autoimmune diseases. Our lead product candidate, brentuximab vedotin (SGN-35), is being developed for the treatment of diseases that express an antigen called CD30 present on several cancer types, including Hodgkin lymphoma and systemic anaplastic large cell lymphoma, or sALCL. We recently announced data from a pivotal clinical trial of brentuximab vedotin for patients with relapsed or refractory Hodgkin lymphoma. The trial was conducted under a special protocol assessment, or SPA, with the U.S. Food and Drug Administration, or FDA. In the pivotal trial, seventy-five percent of the patients achieved an objective response as assessed by an independent central review, which was the primary endpoint in the trial, and the median duration of response was greater than six months. Thirty-four percent of the patients participating in the pivotal trial achieved a complete remission. We also recently reported data from a phase II clinical trial of brentuximab vedotin for patients with relapsed or refractory sALCL. In the phase II sALCL trial, eighty-six percent of the patients achieved an objective response as assessed by an independent central review, which was the primary endpoint in the trial. The median duration of response for the phase II sALCL trial had not yet been reached at a median follow up on study of approximately six months. Fifty-three percent of the patients in the phase II sALCL trial achieved a complete remission. We plan to submit a Biologics License Application, or BLA, to the FDA in the first quarter of 2011 to seek approval of brentuximab vedotin as a treatment for both relapsed or refractory Hodgkin lymphoma and relapsed or refractory sALCL. Brentuximab vedotin is empowered by our proprietary antibody-drug conjugate, or ADC, technology comprising highly potent synthetic drugs and stable linkers for attaching the drugs to monoclonal antibodies. In addition, we have four other clinical-stage programs: SGN-75, ASG-5ME, dacetuzumab (SGN-40), and SGN-70.

In December 2009, we entered into a collaboration agreement with Millennium: The Takeda Oncology Company, or Millennium, to develop and commercialize brentuximab vedotin. Under this collaboration, Seattle Genetics has retained all commercial rights for brentuximab vedotin in the United States and its territories and in Canada, and Millennium has commercial rights in the rest of the world. We also have collaborations for our ADC technology with a number of leading biotechnology and pharmaceutical companies, including Bayer Pharmaceuticals Corporation, or Bayer; Celldex Therapeutics, Inc., or Celldex; Daiichi Sankyo Co., Ltd., or Daiichi Sankyo; Genentech, Inc., a member of the Roche Group, or Genentech; GlaxoSmithKline LLC, or GSK; Millennium, Pfizer, Inc., or Pfizer, and PSMA Development Company LLC, a subsidiary of Progenics Pharmaceuticals Inc., or Progenics; as well as ADC co-development agreements with Agensys Inc., an affiliate of Astellas Pharma Inc., or Agensys, and Genmab A/S, or Genmab.

Our Antibody-Drug Conjugate (ADC) Technologies

Our pipeline of monoclonal antibody-based product candidates is based primarily on our ADC technology. ADCs are monoclonal antibodies that are linked to potent cell-killing drugs. Our ADCs utilize monoclonal antibodies that internalize within target cells after binding to their cell-surface receptors. Enzymes present inside the cell cause the cell-killing drug to be released from the monoclonal antibody, allowing it to have the desired activity. A key component of our ADCs is the linker that attaches the drug to the monoclonal antibody. When the ADC is internalized within the target cell, the drug is released, thereby minimizing toxicity to normal tissues. Our ADCs use auristatins, which are highly potent anti-microtubulin agents. In contrast to natural product drugs that are often more difficult to produce and link to antibodies, our drugs are synthetically produced and easier to scale for manufacturing. Brentuximab vedotin,

Table of Contents

SGN-75, ASG-5ME and SGN-19A all utilize our proprietary, auristatin-based ADC technology, and this technology is also the basis of many of our corporate collaborations. We own or hold exclusive or partially-exclusive licenses to multiple issued patents and patent applications covering our ADC technology. We continue to evaluate new linkers and potent, cell-killing drugs for use in our ADC programs.

Our pipeline of monoclonal antibody-based product candidates also utilizes two additional technologies designed to maximize antitumor activity and reduce toxicity. The first technology is the use of genetic engineering to produce monoclonal antibodies that have intrinsic antitumor activity with lowered risk of adverse events or autoimmune response. The second is our proprietary sugar enhanced antibody, or SEA, technology which is a process to enhance the effector function of monoclonal antibodies to further increase their antitumor activity by selectively reducing sugars in the monoclonal antibodies, or defucosylation. We also evaluate the use of our monoclonal antibodies and ADCs in combination with conventional chemotherapy and other anticancer agents, which may result in increased antitumor activity.

Product Candidate Development Pipeline

The following table summarizes our product candidate development pipeline:

Product Candidate	Description	Commercial Rights	Status
Brentuximab vedotin (SGN-35)	Anti-CD30 ADC	Seattle Genetics in United States and Canada; Millennium	Reported data at the American Society of Hematology, or ASH, 2010 annual meeting from a pivotal phase II single-agent trial conducted under an SPA with the FDA in relapsed and refractory Hodgkin lymphoma
		in rest of world	Reported data at the ASH 2010 annual meeting from a phase II single-agent trial in relapsed and refractory sALCL
			Phase III trial ongoing for patients with Hodgkin lymphoma at high risk of relapse following autologous stem cell transplant, or ASCT (the AETHERA trial)
			Phase II retreatment trial ongoing for patients with Hodgkin lymphoma or sALCL who have relapsed after previously responding to brentuximab vedotin
			Phase I safety trial ongoing in combination with adriamycin, bleomycin, vinblastine and dacarbazine, or ABVD, for front-line treatment of patients with Hodgkin lymphoma
			Phase I safety trial planned in combination with cyclophosphamide, doxorubicin, vincristine and prednisone, or CHOP, for front-line treatment of patients with sALCL
SGN-75	Anti-CD70 ADC	Seattle Genetics	Phase I trial ongoing for relapsed or refractory non-Hodgkin lymphoma and metastatic renal cell carcinoma
ASG-5ME	Anti-AGS-5 ADC	50:50 co-development and commercialization with Agensys	Phase I trial ongoing for metastatic pancreatic cancer

Edgar Filing: SEATTLE GENETICS INC /WA - Form 424B5

Dacetuzumab (SGN-40)	Humanized anti-CD40 antibody	Seattle Genetics	Phase I trial ongoing for castration-resistant prostate cancer Completing phase Ib trials in non-Hodgkin lymphoma and multiple myeloma; considering potential next steps for the program
SGN-70	Humanized anti-CD70 antibody	Seattle Genetics	Phase I trial completed for autoimmune disease
SGN-19A	Anti-CD19 ADC	Seattle Genetics	Future investigational new drug, or IND, candidate for CD19-positive hematologic malignancies

Brentuximab vedotin

Brentuximab vedotin is an ADC composed of an anti-CD30 monoclonal antibody attached to a highly potent cell-killing drug by our proprietary linker technology. We believe the CD30 antigen is an attractive target for cancer therapy because it is expressed on hematologic malignancies including Hodgkin lymphoma and several types of T-cell lymphoma but has limited expression on normal tissues. In December 2009, we entered into a collaboration agreement for the development and commercialization of brentuximab vedotin with Millennium under which we received a \$60 million upfront payment. Under this collaboration, we retained commercial rights in the United States and Canada. Millennium

Table of Contents

has exclusive rights to commercialize brentuximab vedotin in the rest of the world and will fund fifty percent of joint development costs, except in Japan where Millennium is fully responsible for funding development costs. Development funding provided by Millennium over the first three years of the collaboration is expected to be at least \$75 million. We are entitled to receive milestone payments that could total more than \$230 million and tiered royalties beginning in the mid-teens and escalating to the mid-twenties, subject to offsets for royalties paid by Millennium to third parties based on net sales of brentuximab vedotin in Millennium's territories.

We recently reported top line data from a single-agent, open-label pivotal trial of brentuximab vedotin for patients with relapsed or refractory Hodgkin lymphoma conducted under an SPA with the FDA. We also recently reported data from a phase II single-agent, open-label trial for patients with sALCL. We plan to submit a BLA to the FDA in the first quarter of 2011 to seek approval of brentuximab vedotin as a treatment for both relapsed or refractory Hodgkin lymphoma and relapsed or refractory sALCL. We have received orphan drug designations from the FDA and the European Medicines Agency for brentuximab vedotin in Hodgkin lymphoma and sALCL. We are also conducting several other clinical trials of brentuximab vedotin, including a phase II retreatment trial for patients who previously responded to brentuximab vedotin therapy, a phase I combination study of brentuximab vedotin with ABVD, a common chemotherapy regimen, for the front-line treatment of patients with Hodgkin lymphoma, and are planning a phase I combination study of brentuximab vedotin with CHOP, a common chemotherapy regimen, for the front-line treatment of patients with sALCL.

Market Opportunities

According to the American Cancer Society, approximately 8,500 cases of Hodgkin lymphoma were diagnosed in the United States during 2010, and an estimated 1,300 people died of the disease. An additional 2,000 to 3,000 patients per year in the United States are diagnosed with sALCL, a T-cell lymphoma that expresses the CD30 antigen. The use of combination chemotherapy as front-line therapy for malignant lymphomas has resulted in high remission rates. However, a significant number of these patients relapse and require additional treatments including other chemotherapy regimens and ASCT. We believe there is a strong need for therapies that can maintain patients in remission after ASCT and provide a high rate of durable responses in post-ASCT relapses. According to a recognized cancer database and based on primary market research we conducted with physicians, we believe that there are several thousand newly relapsed or refractory Hodgkin lymphoma and sALCL patients in the United States each year who would potentially be eligible for treatment with brentuximab vedotin, and that the United States prevalence population of these patients is approximately 8,000 to 9,000 individuals.

Clinical Results and Development Plan

In collaboration with Millennium, we are pursuing a broad development strategy that includes clinical trials of brentuximab vedotin both as a single agent and in combination with standard therapies for Hodgkin lymphoma and sALCL. These clinical trials include:

Phase II Pivotal Study. In September 2010, we reported positive top-line data from a single-agent, open label pivotal trial of brentuximab vedotin in patients with relapsed or refractory Hodgkin lymphoma conducted under an SPA with the FDA. The trial assessed the efficacy and safety of single-agent brentuximab vedotin in 102 patients with relapsed or refractory Hodgkin lymphoma who previously received ASCT. The trial was conducted at multiple centers in the United States, Canada and Europe. Patients received brentuximab vedotin every three weeks for up to approximately one year. Seventy-five percent of patients achieved an objective response as assessed by an independent central review, the primary endpoint of the trial. At the ASH annual meeting in December 2010, we reported that thirty-four percent of patients achieved a complete remission, and that the median duration of response was 29 weeks as assessed by independent central review and 47 weeks as assessed by investigators. We also reported that tumor reductions were achieved in ninety-four percent of patients. Brentuximab vedotin was generally well tolerated, with the majority of adverse events being Grade 1 or 2. The most common adverse events were peripheral sensory neuropathy, fatigue, nausea, upper respiratory tract infection and diarrhea. The most common Grade 3 or higher adverse events were neutropenia, peripheral sensory neuropathy, thrombocytopenia and anemia.

Phase II sALCL Study. In September 2010, we reported positive top-line data from a phase II single-agent, open-label trial of brentuximab vedotin in 58 patients with relapsed or refractory sALCL. Eighty-six percent of patients achieved an

Table of Contents

objective response, the primary endpoint of the trial, as assessed by an independent central review. At the ASH annual meeting in December 2010, we reported that fifty-three percent of patients achieved a complete remission. The median duration of response for the trial had not yet been reached at a median follow up on study of approximately six months. We also reported that tumor reductions were achieved in ninety-seven percent of patients. The trial was conducted at multiple centers in the United States and Europe. Brentuximab vedotin was generally well tolerated, with the majority of adverse events being Grade 1 or 2. The most common adverse events were nausea, peripheral sensory neuropathy, fatigue, fever and diarrhea. The most common Grade 3 or higher adverse events were neutropenia, thrombocytopenia, peripheral sensory neuropathy and anemia.

Phase III Relapse Prevention Study (AETHERA). In April 2010, we initiated a phase III trial of brentuximab vedotin for post-transplant Hodgkin lymphoma patients, or the AETHERA trial. The AETHERA trial is a randomized, double-blind, placebo-controlled study to evaluate brentuximab vedotin versus placebo in approximately 325 Hodgkin lymphoma patients following ASCT. Patients must be at high risk for residual Hodgkin lymphoma, defined as those with a history of refractory Hodgkin lymphoma, those who relapse or progress within one year from receiving front-line chemotherapy and/or those who have disease outside of the lymph nodes at the time of pre-ASCT relapse. The primary endpoint of the study is progression-free survival and secondary endpoints include overall survival, safety and tolerability. Patients receive brentuximab vedotin every three weeks for up to approximately one year. The AETHERA trial is being conducted at multiple centers in the United States, Europe and Russia. The AETHERA trial is designed to fulfill regulatory requirements in both the United States and Europe, and will also provide data on the use of brentuximab vedotin in an earlier line of Hodgkin lymphoma therapy as part of an integrated second-line regimen with ASCT.

Phase II Retreatment Study. We are conducting a phase II trial of brentuximab vedotin for the retreatment of patients with relapsed or refractory Hodgkin lymphoma or sALCL who have relapsed after previously achieving a complete or partial response to therapy with brentuximab vedotin. The trial is designed to enroll up to 50 patients at multiple centers in the United States and Europe and is intended to assess the potential for patients to benefit from additional courses of brentuximab vedotin treatment.

Phase I Front-line ABVD Combination Study. In February 2010, we initiated a combination trial to evaluate brentuximab vedotin plus ABVD, a commonly used front-line chemotherapy regimen for Hodgkin lymphoma. The phase I dose-escalation trial will evaluate the safety of combining brentuximab vedotin and ABVD, as well as assess pharmacokinetics and antitumor activity of the combination. The study is expected to enroll approximately 40 patients at multiple centers in the United States and Canada.

Phase I Dose Escalation Studies. We have conducted two phase I clinical trials of brentuximab vedotin in patients with relapsed or refractory CD30-positive hematologic malignancies, primarily Hodgkin lymphoma. These single-agent, dose-escalation studies were designed to evaluate the safety, pharmacokinetic profile and antitumor activity of brentuximab vedotin administered either every three weeks or every week. In both trials, greater than fifty percent of patients treated at higher dose levels achieved a complete or partial remission, including greater than thirty percent achieving a complete remission. Brentuximab vedotin was generally well tolerated, with the majority of adverse events being Grade 1 or 2. The most common side effects included fatigue, fever, peripheral neuropathy, neutropenia, diarrhea and nausea.

Planned Phase I Front-line CHOP Combination Study. We are planning to initiate a combination trial to evaluate brentuximab vedotin plus CHOP, a commonly used front-line chemotherapy regimen for sALCL. The phase I dose-escalation trial will evaluate the safety of utilizing brentuximab vedotin as part of a front-line CHOP-containing regimen, as well as assess pharmacokinetics and antitumor activity of the combination. The study is expected to enroll approximately 40 patients at multiple centers in the United States, Canada and Europe.

In collaboration with Millennium, we are also exploring additional potential trial designs to evaluate brentuximab vedotin more broadly as a treatment for CD30-positive lymphoma in both earlier lines of therapy and patient subsets with high medical need. Additionally, we plan to initiate trials in other CD30-positive cancers, including both hematologic malignancies and solid tumors. We and Millennium are in discussions with multiple clinical investigators and cooperative groups in the United States, Canada and Europe about potential additional clinical trials of brentuximab vedotin and internal planning activities are underway to evaluate these and other life cycle management opportunities for this program.

We believe the reported clinical data for brentuximab vedotin indicate the potential of our ADC technology to empower antibodies. We previously conducted clinical trials of an unconjugated anti-CD30 monoclonal antibody, SGN-30,

Table of Contents

which is the same antibody used in brentuximab vedotin. At the ASH annual meeting in December 2005, we reported data from a phase II single agent trial of SGN-30, where the antibody was not sufficiently active as a single agent to demonstrate any objective responses in 35 patients with relapsed or refractory Hodgkin lymphoma treated at weekly doses up to twelve milligrams per kilogram (12 mg/kg). In contrast, brentuximab vedotin has demonstrated a high objective response rate in a similar patient population at much lower doses and at a less frequent dosing schedule.

SGN-75

SGN-75 is an ADC composed of an anti-CD70 monoclonal antibody linked to a potent auristatin compound using our proprietary ADC technology. We presented preliminary data at the 35th European Society for Medical Oncology Congress in October 2010 from our phase I clinical trial of SGN-75 for CD70-positive relapsed or refractory non-Hodgkin lymphoma and metastatic renal cell carcinoma. The reported results demonstrated the tolerability and antitumor activity of SGN-75, including two objective responses in the first 16 patients treated. The single-agent phase I study was initiated in November 2009 and is designed to enroll up to 80 patients at multiple centers in the United States. The trial will evaluate the safety, tolerability, pharmacokinetic profile and antitumor activity of SGN-75 in order to identify a dose and schedule for potential future clinical trials. The maximum tolerated dose has not yet been established and dose escalation is continuing in this clinical trial.

We presented data at the American Association for Cancer Research, or AACR, annual meeting in April 2009 demonstrating that the CD70 antigen has a broad expression profile on a variety of solid tumors, including pancreatic, larynx/pharynx, ovarian, skin, lung and colon cancer. This presentation adds to data we previously reported at AACR meetings indicating that CD70 is expressed in multiple hematologic malignancies, renal cancer and glioblastoma and demonstrating that SGN-75 has potent antitumor activity at well-tolerated doses in preclinical models of renal cell cancer.

ASG-5ME

ASG-5ME is an ADC targeting the SLC44A4, a novel target expressed on more than eighty percent of pancreatic, prostate and gastric cancer tumors. We are developing ASG-5ME as a product candidate for the treatment of solid tumors under our co-development collaboration with Agensys.

We and Agensys initiated a phase I clinical trial of ASG-5ME for the treatment of metastatic pancreatic cancer in July 2010 and a phase I clinical trial of ASG-5ME for the treatment of castration-resistant prostate cancer in October 2010. Both trials will evaluate the safety, tolerability, pharmacokinetic profile and antitumor activity of ASG-5ME in order to identify a dose and schedule for potential future clinical trials. The maximum tolerated dose has not yet been established in either trial and dose escalation is continuing.

Dacetuzumab (SGN-40)

Dacetuzumab is a humanized monoclonal antibody that has been evaluated in phase I and phase II clinical trials for non-Hodgkin lymphoma and multiple myeloma. Dacetuzumab targets the CD40 antigen, which is expressed on B-cell lineage hematologic malignancies, as well as solid tumors such as bladder, renal and ovarian cancer. In January 2007, we entered into a collaboration agreement with Genentech for the development and commercialization of dacetuzumab. Under the terms of the agreement, we received an upfront payment of \$60 million, progress-dependent milestone payments totaling \$20 million, and reimbursement funding for development activities performed under the collaboration. In October 2009, we discontinued a phase IIb combination clinical trial for diffuse large B-cell lymphoma based on a determination by the Independent Data Monitoring Committee that the trial would be unlikely to meet its primary endpoint of superior complete response rate in the dacetuzumab combination arm as compared to the placebo combination arm. In December 2009, Genentech provided notice of termination of the collaboration agreement, and the collaboration ended in June 2010. Genentech remains responsible for funding development costs associated with completing all clinical trials for dacetuzumab ongoing as of the end of the collaboration. All product rights to dacetuzumab were returned to Seattle Genetics upon completion of the collaboration. We are evaluating available clinical and preclinical data and considering potential next steps for the program. As a result of such evaluation or other factors, we may determine to discontinue the development of dacetuzumab. We will be responsible for and will solely fund any new dacetuzumab development and clinical trial activities that we may elect to conduct.

Table of Contents

SGN-70

SGN-70 is a humanized anti-CD70 monoclonal antibody that we believe may have application for the treatment of autoimmune diseases, a condition where the body's immune system malfunctions and attacks its own healthy cells. Many therapies for autoimmune diseases rely on suppressing the immune system to prevent further damage to normal tissues, but have the unwanted side effect of making the patient more susceptible to infection or cancer. The CD70 antigen is expressed on activated T- and B-cells, but is absent on these cells when in a resting state. Since resting T- and B-cells make up the majority of immune cells circulating in the body, SGN-70 may be able to prevent or reduce a damaging immune response without globally suppressing the patient's immune system. We have presented preclinical data demonstrating that SGN-70 inhibits T- and B-cell functions, selectively depletes CD70-positive activated T-cells and limits expansion of CD70-positive lymphocytes. We conducted a phase I dose-escalation trial of SGN-70 to assess the safety, tolerability and pharmacokinetics of SGN-70 in healthy volunteers and amended the trial design to add patients with autoimmune disease. We completed enrollment to this phase I trial in 2010 and are currently evaluating the results of the trial to determine potential next steps for the program.

SGN-19A

SGN-19A is a preclinical ADC product candidate for the treatment of hematologic malignancies. SGN-19A targets CD19, which is a B-cell antigen that is expressed in non-Hodgkin lymphoma, chronic lymphocytic leukemia and acute lymphocytic leukemia. We have previously reported preclinical data demonstrating that SGN-19A binds to target cells with high affinity, internalizes and induces potent cancer-cell-killing activity and durable tumor regressions at low doses in multiple cancer models. We are planning an IND submission to the FDA for SGN-19A in the first half of 2012.

Our Strategy

Our strategy is to become a leading developer and marketer of monoclonal antibody-based therapies for cancer and autoimmune diseases. Key elements of our strategy are to:

Advance Brentuximab Vedotin toward Regulatory Approval and Successful Commercialization. Our near-term objective is to advance brentuximab vedotin toward regulatory approval and successful commercialization. We plan to submit a BLA to the FDA in the first quarter of 2011 to seek approval of brentuximab vedotin as a treatment for both relapsed or refractory Hodgkin lymphoma and relapsed or refractory sALCL. We also plan to continue building a commercial infrastructure to support sales and marketing of brentuximab vedotin in the United States and Canada, if approved for commercial sale, and a medical affairs infrastructure to provide medical information about brentuximab vedotin and its role in the practice of medicine. If we receive approval for commercial sale, we intend to market brentuximab vedotin in the United States and Canada with a sales force of approximately 50 to 75 sales representatives.

Continue to Develop our Other Clinical-Stage Programs. We believe that it is important to maintain a diverse pipeline of antibody-based product candidates to sustain our future growth. To accomplish this, we plan to continue to advance the development of our other clinical product candidates, particularly SGN-75 and ASG-5ME.

Enter into Strategic Collaborations to Generate Capital and Supplement our Internal Resources. We enter into collaborations at appropriate stages in our drug development process to broaden and accelerate clinical trial development and potential commercialization of our product candidates. Collaborations can generate significant capital, supplement our own internal expertise in key areas such as manufacturing, regulatory affairs and clinical development, and provide us with access to our collaborators' marketing, sales and distribution capabilities. When establishing strategic collaborations, we seek strong financial terms and endeavor to retain significant product rights, such as our brentuximab vedotin collaboration with Millennium, in which we retained commercial rights in the United States and Canada.

Advance our Preclinical Programs toward Clinical Trials. We currently have a lead preclinical program, SGN-19A, which is a future IND candidate. We also have several other preclinical programs at the research stage that employ either our SEA or ADC technologies. In addition, we have ADC co-development agreements with Agensys and Genmab that provide us with the opportunity to co-develop additional ADCs.

S-6

Table of Contents

Continue to Leverage our Industry-Leading ADC Technology. We have developed proprietary ADC technology designed to empower monoclonal antibodies. We are currently developing multiple product candidates that employ our ADC technology, including brentuximab vedotin, SGN-75, ASG-5ME, SGN-19A and several other preclinical programs. We also license our ADC technology to leading biotechnology and pharmaceutical companies to generate near-term revenue and funding, as well as potential future milestones and royalties. Presently, we have active ADC collaborations with Bayer, Celldex, Daiichi Sankyo, Genentech, GSK, Millennium, Pfizer and Progenics, as well as ADC co-development agreements with Agensys and Genmab. Our ADC technology licensing deals have generated over \$145 million as of December 31, 2010 through a combination of upfront, research support, and other fees, milestones and equity purchases.

Support Future Growth of our Pipeline through Internal Research Efforts and Strategic In-Licensing. We have internal research programs directed toward identifying novel antigen targets and monoclonal antibodies, creating new antibody engineering techniques and developing new classes of stable linkers and potent, cell-killing drugs for our ADC technology. In addition, we supplement these internal efforts through ongoing initiatives to identify product candidates, products and technologies to in-license from biotechnology and pharmaceutical companies and academic institutions. We have entered into such license agreements with Bristol-Myers Squibb Corporation, the University of Miami, Arizona State University, Mabtech AB, Genentech and CLB Research and Development, among others. We also have active research collaborations with other biotechnology companies and academic institutions to help advance our ADC technology.

Patents and Proprietary Technology

Our owned and licensed patents and patent applications are directed to product candidates, monoclonal antibodies, ADC product candidates, our ADC and SEA technologies and other antibody-based and/or enabling technologies. We commonly seek claims directed to compositions of matter, including antibodies, ADCs, and drug-linkers containing highly potent cell-killing drugs, as well as methods of using such compositions. When appropriate, we also seek claims to related technologies, such as methods of using certain sugar analogs utilized in our SEA technology. For each of our product candidates, we have filed or expect to file multiple patent applications. We maintain patents and prosecute applications worldwide for technologies that we have outlicensed, such as our ADC technology. Similarly, for partnered product development candidates, such as brentuximab vedotin and ASG-5ME, we seek to work closely with our development partners to coordinate patent efforts, including patent application filings, prosecution, term extension, defense and enforcement. As our development product candidates advance through research and development, we seek to diligently identify and protect new inventions, such as combinations, improvements to methods of manufacturing, and methods of treatment. We also work closely with our scientist personnel to identify and protect new inventions that could eventually add to our development pipeline. In addition to our patented intellectual property, we also rely on trade secrets and other proprietary information, especially when we do not believe that patent protection is appropriate or can be obtained.

Patents expire, on a country by country basis, at various times depending on various factors, including the filing date of the corresponding patent application(s), the availability of patent term extension and supplemental protection certificates and terminal disclaimers. Although we believe our owned and licensed patents and patent applications provide us with a competitive advantage, the patent positions of biotechnology and pharmaceutical companies can be uncertain and involve complex legal and factual questions. We and our corporate collaborators may not be able to develop patentable products or processes or obtain patents from pending patent applications. Even if patent claims are allowed, the claims may not issue. In the event of issuance, the patents may not be sufficient to protect the proprietary technology owned by or licensed to us or our corporate collaborators. Our or our corporate collaborators' current patents, or patents that issue on pending applications, may be challenged, invalidated, infringed or circumvented. Our patents have been and may in the future be challenged by third parties in post-issuance administrative proceedings or in litigation as invalid or unenforceable under U.S. or foreign laws, or they may be infringed by third parties. As a result, we are from time to time involved in the defense and enforcement of our patents or other intellectual property rights in a court of law, U.S. Patent and Trademark Office interference or reexamination proceeding, foreign opposition proceeding or related legal and administrative proceeding in the United States and elsewhere. For example, we are currently involved in a pending patent opposition proceeding against our European patent, EP Patent No. 1347730, which covers the use of certain CD30 antibodies and conjugates, including brentuximab vedotin, for the treatment of Hodgkin lymphoma. The costs of

Table of Contents

defending our patents or enforcing our proprietary rights in post-issuance administrative proceedings or litigation may be substantial and the outcome can be uncertain. An adverse outcome may allow third parties to use our proprietary technologies without a license from us or our collaborators. For example, the possible invalidation of our European patent or amendment of its granted claims could adversely affect our ability to restrict third party products from competing with brentuximab vedotin, if approved for commercial sale in the European Union. Ours and our collaborators' patents may also be circumvented, which may allow third parties to use similar technologies without a license from us or our collaborators.

Our commercial success depends significantly on our ability to operate without infringing patents and proprietary rights of third parties. A number of pharmaceutical and biotechnology companies, universities and research institutions may have filed patent applications or may have been granted patents that cover technologies similar to the technologies owned, optioned by or licensed to us or to our collaborators. In addition, we are monitoring the progress of multiple pending patent applications of other companies that, if granted, may require us to license or challenge their validity upon commercialization of our product candidates. We cannot determine with certainty whether patents or patent applications of other parties may materially affect our or our collaborators' ability to make, use or sell any products.

Corporate Information

We were incorporated in Delaware on July 15, 1997. Our principal executive offices are located at 21823 30th Drive SE, Bothell, Washington 98021. Our telephone number is (425) 527-4000. Our website is www.seattlegenetics.com. The information contained in, or that can be accessed through, our website is not part of, and is not incorporated into, this prospectus supplement or the accompanying prospectus and should not be considered part of this prospectus supplement or the accompanying prospectus.

Table of Contents

The Offering

Common stock offered by us **shares**

Common stock to be outstanding immediately after this offering **shares**
Overallotment Option

We have granted the underwriters an option to purchase up to _____ additional shares of our common stock to cover overallotments, if any. This option is exercisable, in whole or in part, for a period of 30 days from the date of this prospectus supplement.

Use of Proceeds

We intend to use the net proceeds from this offering to fund potential regulatory approval of brentuximab vedotin and our continuing preparations for the potential commercial launch of brentuximab vedotin, to fund our research and development efforts, including clinical trials and manufacturing campaigns for our product candidates, and for working capital and general corporate purposes. We may also use a portion of the net proceeds from this offering to acquire or invest in complementary businesses, technologies, product candidates or other intellectual property, although we have no present commitments or agreements to do so. See "Use of Proceeds" on page S-14 of this prospectus supplement.

NASDAQ Global Select Market Listing

Our common stock is listed on The NASDAQ Global Select Market under the symbol SGEN.

Risk Factors

An investment in our common stock involves a high degree of risk. See "Risk Factors" beginning on page S-10 of this prospectus supplement and in our Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2010, which are incorporated by reference into this prospectus supplement and the accompanying prospectus.

Insider Participation

Entities affiliated with one of our directors and principal stockholders, Felix Baker, have indicated an interest in purchasing up to an aggregate of approximately 18 percent of the common stock offered in this offering at the price offered to the public. Because these indications of interest are not binding agreements or commitments to purchase, any or all of these entities may elect not to purchase any shares in this offering, or the underwriters may elect not to sell any shares in this offering to any or all of these entities.

Outstanding Shares

The number of shares of our common stock to be outstanding immediately after this offering is based on 101,339,700 shares outstanding as of September 30, 2010 and excludes:

12,756,663 shares of our common stock issuable upon the exercise of stock options outstanding under our equity incentive and stock option plans as of September 30, 2010, having a weighted-average exercise price of approximately \$9.75 per share;

1,112,500 shares of our common stock issuable upon exercise of warrants outstanding as of September 30, 2010, having an exercise price of \$6.25 per share;

Edgar Filing: SEATTLE GENETICS INC /WA - Form 424B5

an aggregate of 5,523,118 shares of common stock reserved for future issuance under our Amended and Restated 2007 Equity Incentive Plan and our 2000 Directors' Stock Option Plan as of September 30, 2010; and

328,014 shares of common stock reserved for future issuance under our 2000 Employee Stock Purchase Plan as of September 30, 2010. Except as otherwise indicated, all information in the prospectus supplement assumes no exercise by the underwriters of their overallotment option.

S-9

Table of Contents

Risk Factors

An investment in our common stock involves a high degree of risk. Before deciding whether to invest in our common stock, you should consider carefully the risks described below and discussed under the section captioned "Risk Factors" contained in our Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2010, which are incorporated by reference in this prospectus supplement and the accompanying prospectus in their entirety, together with the other information in this prospectus supplement, the accompanying prospectus, the information and documents incorporated by reference, and in any free writing prospectus that we have authorized for use in connection with this offering. If any of these risks actually occur, our business, financial condition, results of operations or cash flows could be seriously harmed. This could cause the trading price of our common stock to decline, resulting in a loss of all or part of your investment.

Risks Related to this Offering and our Common Stock

Our stock price is volatile and your investment may suffer a decline in value.

The market price of our stock has in the past been, and is likely to continue in the future to be, very volatile. During the second half of 2010, our closing stock price fluctuated between \$11.44 and \$17.35 per share. As a result of fluctuations in the price of our common stock, you may be unable to sell your shares at or above the price you paid for them. The market price of our common stock may be subject to substantial volatility in response to many risk factors listed in this section and under the section captioned "Risk Factors" contained in our Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2010, and others beyond our control, including:

announcements regarding the results of discovery efforts and preclinical and clinical activities by us or our competitors;

our ability to properly prepare and timely submit a BLA to the FDA for brentuximab vedotin or any other regulatory submissions we may in the future plan or determine to make;

termination of or changes in our existing collaborations or licensing arrangements, especially our brentuximab vedotin collaboration with Millennium;

establishment of new collaboration, partnering or licensing arrangements, or the termination or completion of any collaborations or other arrangements, by us or our competitors;

announcements of FDA approval or non-approval of our product candidates or the recommendations of any FDA advisory committees regarding the approval or non-approval of any of our product candidates, or delays in the FDA review process;

actions taken by regulatory authorities with respect to our product candidates, our clinical trials or our regulatory filings;

our ability to raise capital;

market conditions for equity investments in general, or the biotechnology or pharmaceutical industries in particular;

developments or disputes concerning our proprietary rights;

issuance of new or changed analysts' reports and recommendations regarding us or our competitors;

share price and volume fluctuations attributable to inconsistent trading volume levels of our shares;

changes in government regulations; and

economic or other external factors.

The stock markets in general, and the markets for biotechnology stocks in particular, have experienced significant volatility that has often been unrelated to the operating performance of particular companies. The financial markets continue to face significant uncertainty, resulting in a decline in investor confidence and concerns about the proper functioning of the securities markets, which decline in general investor confidence resulted in depressed stock prices for many companies notwithstanding the lack of a fundamental change in their underlying business models or prospects. These broad market fluctuations may adversely affect the trading price of our common stock. In the past, class action litigation has often been instituted against companies whose securities have experienced periods of volatility in market price. Any such litigation brought against us could result in substantial costs, which would hurt our financial condition.

S-10

Table of Contents

and results of operations and divert management's attention and resources, which could result in delays of our clinical trials or our development and commercialization efforts.

We will continue to need significant amounts of additional capital following this offering that may not be available to us.

We expect to make additional capital outlays and to increase operating expenditures over the next several years as we hire additional employees and support our preclinical development, manufacturing and clinical trial activities, as well as position our product candidates, specifically brentuximab vedotin, for potential regulatory approval and commercial sale. Although some of the expenditures related to brentuximab vedotin are expected to be shared with Millennium as part of our collaboration, we will continue to need significant amounts of additional capital following this offering. We may seek additional funding through public or private financings, including equity financings, and through other means, such as collaborations and license agreements. However, the global credit and financial markets continue to experience uncertainty, which, along with current economic conditions, may make it more difficult for us to raise equity and debt financing when we need it. As a result of these and other factors, we do not know whether additional financing will be available when needed, or that, if available, we will obtain financing on terms favorable to us or our stockholders. If adequate funds are not available to us, we will be required to delay, reduce the scope of or eliminate one or more of our development programs, which may adversely affect our business and operations. Our future capital requirements will depend upon a number of factors, including:

the time and costs involved in obtaining regulatory approvals, including the preparation for product commercialization;

the size, complexity, timing, and number of clinical programs;

our receipt of milestone-based payments or other revenue from our collaborations or license arrangements;

the cost of establishing clinical and commercial supplies of our product candidates and any products that we and/or our collaborators may develop;

progress with clinical trials;

the costs associated with acquisitions or licenses of additional products, including licenses we may need to commercialize our products;

the terms and timing of any future collaborative, licensing and other arrangements that we may establish;

the costs involved in preparing, filing, prosecuting, maintaining and enforcing patent claims;

the potential costs associated with state and federal taxes;

the timing and cost of milestone payment obligations as our product candidates progress towards commercialization; and

competing technological and market developments.

In addition, changes in our business may occur that would consume available capital resources sooner than we expect. To the extent that we raise additional capital by issuing equity securities, our stockholders may experience substantial dilution. To the extent that we raise additional

funds through collaboration and licensing arrangements, we may be required to relinquish some rights to our technologies or product candidates, or grant licenses on terms that are not favorable to us.

Our existing stockholders have significant control of our management and affairs.

Our executive officers and directors and holders of greater than five percent of our outstanding voting stock, together with entities that may be deemed affiliates of, or related to, such persons or entities, beneficially owned approximately fifty-six percent of our voting power as of November 30, 2010. As a result, these stockholders, acting together, may be able to control our management and affairs and matters requiring stockholder approval, including the election of directors and approval of significant corporate transactions, such as mergers, consolidations or the sale of substantially all of our assets. Consequently, this concentration of ownership may have the effect of delaying, deferring or preventing a change in control, including a merger, consolidation, takeover or other business combination involving us or discourage a potential acquirer from making a tender offer or otherwise attempting to obtain control, which might affect the market price of our common stock.

Table of Contents

Anti-takeover provisions could make it more difficult for a third party to acquire us.

Our Board of Directors has the authority to issue up to 5,000,000 shares of preferred stock and to determine the price, rights, preferences, privileges and restrictions, including voting rights, of those shares without any further vote or action by the stockholders, which authority could be used to adopt a poison pill that could act to prevent a change of control of Seattle Genetics that has not been approved by our Board of Directors. The rights of the holders of common stock may be subject to, and may be adversely affected by, the rights of the holders of any preferred stock that may be issued in the future. The issuance of preferred stock may have the effect of delaying, deferring or preventing a change of control of Seattle Genetics without further action by the stockholders and may adversely affect the voting and other rights of the holders of common stock. Further, certain provisions of our charter documents, including provisions eliminating the ability of stockholders to take action by written consent and limiting the ability of stockholders to raise matters at a meeting of stockholders without giving advance notice, may have the effect of delaying or preventing changes in control or management of Seattle Genetics, which could have an adverse effect on the market price of our stock. In addition, our charter documents provide for a classified board, which may make it more difficult for a third party to gain control of our Board of Directors. Similarly, state anti-takeover laws in Delaware and Washington related to corporate takeovers may prevent or delay a change of control of Seattle Genetics.

Management will have broad discretion as to the use of the proceeds from this offering, and we may not use the proceeds effectively.

Our management will have broad discretion in the application of the net proceeds from this offering and could spend the proceeds in ways that do not improve our results of operations or enhance the value of our common stock. Our failure to apply these funds effectively could have a material adverse effect on our business, delay the development of our product candidates and cause the price of our common stock to decline.

You will experience immediate and substantial dilution in the net tangible book value per share of the common stock you purchase.

Since the price per share of our common stock being offered is substantially higher than the net tangible book value per share of our common stock, you will suffer substantial dilution in the net tangible book value of the common stock you purchase in this offering. After giving effect to the sale of _____ shares of our common stock in this offering at the public offering price of \$ _____ per share and based on our net tangible book value as of September 30, 2010, if you purchase shares of common stock in this offering, you will suffer immediate and substantial dilution of \$ _____ per share in the net tangible book value of the common stock. See the section entitled "Dilution" on page S-15 in this prospectus supplement for a more detailed discussion of the dilution you will incur if you purchase common stock in this offering.

In addition, we have a significant number of stock options and warrants outstanding. To the extent that outstanding stock options or warrants have been or may be exercised or other shares issued, investors purchasing our common stock in this offering may experience further dilution. In addition, we may choose to raise additional capital due to market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans. To the extent that additional capital is raised through the sale of equity or convertible debt securities, the issuance of these securities could result in further dilution to our stockholders or result in downward pressure on the price of our common stock.

Table of Contents

Forward-Looking Statements

This prospectus supplement, the accompanying prospectus, the documents we have filed with the SEC that are incorporated herein by reference and any free writing prospectus that we have authorized for use in connection with this offering contain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, or the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act. These statements relate to future events or to our future operating or financial performance and are based on our current expectations, assumptions, estimates and projections about our business and our industry, and involve known and unknown risks, uncertainties and other factors that may cause our actual results, levels of activity, performance or achievement to be materially different from any future results, levels of activity, performance or achievements expressed or implied by the forward-looking statements.

Forward-looking statements include, but are not limited to, statements about:

the submission and timing of applications for regulatory approvals;

our ability to obtain and maintain regulatory approvals for our product candidates;

our ability to develop adequate sales and marketing capabilities and our expectations regarding the size of our initial sales force for any approved product;

our ability to achieve commercial acceptance of our product candidates if approved for commercial sale;

the development of our product candidates;

the success and timing of our preclinical studies and clinical trials, and the commencement of future clinical trials;

the timing of release of clinical data;

the market opportunities for our product candidates;

the establishment, maintenance and development of collaborative, licensing and other similar arrangements;

the terms and timing of any collaborative, licensing and other similar arrangements, including the timing of potential milestone payments;

our ability to identify new potential product candidates;

our ability to scale-up our manufacturing capabilities and facilities;

our ability to obtain and maintain intellectual property protection for our product candidates;

the use of proceeds from this offering;

our projected revenues, operating expenses and use of cash in operations; and

our liquidity.

In some cases, you can identify forward-looking statements by terms such as anticipate, believe, could, estimate, expect, intend, may, potential, predict, project, should, will, would and similar expressions intended to identify forward-looking statements. While we believe we have a reasonable basis for each forward-looking statement, we caution you that these statements are based on a combination of facts and factors currently known by us and our projections of the future, about which we cannot be certain. We discuss many of these risks, uncertainties and other factors in greater detail under the sections captioned Risk Factors beginning on page S-10 of this prospectus supplement and in our Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2010, which is incorporated herein by reference. Given these risks, uncertainties and other factors, you should not place undue reliance on these forward-looking statements. Also, these forward-looking statements represent our estimates and assumptions only as of the date of the document containing the applicable statement.

You should read carefully this prospectus supplement, the accompanying prospectus, together with the information incorporated herein by reference as described under the heading Information Incorporated by Reference in this prospectus supplement, and any free writing prospectus that we have authorized for use in connection with this offering completely and with the understanding that our actual future results may be materially different from what we expect. We hereby qualify all of our forward-looking statements by these cautionary statements.

Except as required by law, we assume no obligation to update these forward-looking statements publicly, or to update the reasons actual results could differ materially from those anticipated in these forward-looking statements, even if new information becomes available in the future. Thus, you should not assume that our silence over time means that actual events are bearing out as expressed or implied in such forward-looking statements.

Table of Contents

Use of Proceeds

We estimate that the net proceeds from the sale of the _____ shares of common stock that we are offering will be approximately \$ _____ million, or approximately \$ _____ million if the underwriters exercise in full their option to purchase _____ additional shares of common stock, based on the public offering price of \$ _____ per share and after deducting the underwriting discounts and commissions and estimated offering expenses payable by us.

We intend to use the net proceeds from this offering to fund potential regulatory approval of brentuximab vedotin and our continuing preparations for the potential commercial launch of brentuximab vedotin, to fund our research and development efforts, including clinical trials and manufacturing campaigns for our product candidates, and for working capital and general corporate purposes. We may also use a portion of the net proceeds from this offering to acquire or invest in complementary businesses, technologies, product candidates or other intellectual property, although we have no present commitments or agreements to do so.

The amounts and timing of these expenditures will depend on a number of factors, such as the timing and progress towards our submission of applications for regulatory approval and obtaining potential regulatory approval for, and the potential commercial launch of, brentuximab vedotin, our research and development efforts, technological advances and the competitive environment for our product candidates. As of the date of this prospectus supplement, we cannot specify with certainty all of the particular uses for the net proceeds to us from this offering. Accordingly, we will retain broad discretion over the use of these proceeds. Pending application of the net proceeds as described above, we intend to temporarily invest the proceeds in short and long-term interest bearing instruments.

Table of Contents

Dilution

Our net tangible book value as of September 30, 2010 was approximately \$189.8 million, or \$1.87 per share. Net tangible book value per share is determined by dividing our total tangible assets, less total liabilities, by the number of shares of our common stock outstanding as of September 30, 2010. Dilution in net tangible book value per share represents the difference between the amount per share paid by purchasers of shares of common stock in this offering and the net tangible book value per share of our common stock immediately after this offering.

After giving effect to the sale of _____ shares of our common stock in this offering at the public offering price of \$ _____ per share and after deducting the underwriting discounts and commissions and estimated offering expenses payable by us, our as adjusted net tangible book value as of September 30, 2010 would have been approximately \$ _____ million, or \$ _____ per share. This represents an immediate increase in net tangible book value of \$ _____ per share to existing stockholders and immediate dilution in net tangible book value of \$ _____ per share to investors purchasing our common stock in this offering at the public offering price. The following table illustrates this dilution on a per share basis:

Public offering price per share	\$
Net tangible book value per share as of September 30, 2010	\$ 1.87
Increase per share attributable to investors purchasing our common stock in this offering	

As adjusted net tangible book value per share after this offering

Dilution per share to investors purchasing our common stock in this offering	\$
--	----

If the underwriters exercise in full their option to purchase _____ additional shares of common stock at the public offering price of \$ _____ per share, the as adjusted net tangible book value after this offering would be \$ _____ per share, representing an increase in net tangible book value of \$ _____ per share to existing stockholders and immediate dilution in net tangible book value of \$ _____ per share to investors purchasing our common stock in this offering at the public offering price.

The above discussion and table are based on 101,339,700 shares issued and outstanding as of September 30, 2010 and exclude:

12,756,663 shares of our common stock issuable upon the exercise of stock options outstanding under our equity incentive and stock option plans as of September 30, 2010, having a weighted-average exercise price of approximately \$9.75 per share;

1,112,500 shares of our common stock issuable upon exercise of warrants outstanding as of September 30, 2010, having an exercise price of \$6.25 per share;

an aggregate of 5,523,118 shares of common stock reserved for future issuance under our Amended and Restated 2007 Equity Incentive Plan and our 2000 Directors' Stock Option Plan as of September 30, 2010; and

Edgar Filing: SEATTLE GENETICS INC /WA - Form 424B5

328,014 shares of common stock reserved for future issuance under our 2000 Employee Stock Purchase Plan as of September 30, 2010. To the extent that outstanding options or warrants are exercised, you will experience further dilution. In addition, we may choose to raise additional capital due to market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans. To the extent that additional capital is raised through the sale of equity or convertible debt securities, the issuance of these securities could result in further dilution to our stockholders.

S-15

Table of Contents

Material U.S. Federal Income and Estate Tax Consequences to Non-U.S. Holders

The following summary describes the material U.S. federal income and estate tax consequences of the acquisition, ownership and disposition of our common stock acquired in this offering by a Non-U.S. Holder (as defined below). This discussion does not address all aspects of U.S. federal income and estate taxes and does not deal with foreign, state and local consequences that may be relevant to Non-U.S. Holders in light of their particular circumstances. Special rules may apply to certain Non-U.S. Holders that are subject to special treatment under the Internal Revenue Code of 1986, as amended, or the Code, such as financial institutions, insurance companies, tax-exempt organizations, broker-dealers and traders in securities, U.S. expatriates, controlled foreign corporations, passive foreign investment companies, corporations that accumulate earnings to avoid U.S. federal income tax, persons that hold our common stock as part of a straddle, hedge, conversion transaction, synthetic security or integrated investment, partnerships and other pass-through entities, and investors in such pass-through entities. Such Non-U.S. Holders are urged to consult their own tax advisors to determine the U.S. federal, state, local and other tax consequences that may be relevant to them. Furthermore, the discussion below is based upon the provisions of the Code, and Treasury regulations, rulings and judicial decisions thereunder as of the date hereof, and such authorities may be repealed, revoked or modified, perhaps retroactively, so as to result in U.S. federal income and estate tax consequences different from those discussed below. No ruling has been or will be sought from the Internal Revenue Service, or IRS, with respect to the matters discussed below, and there can be no assurance that the IRS will not take a contrary position regarding the tax consequences of the acquisition, ownership or disposition of our common stock, or that any such contrary position would not be sustained by a court. This discussion is limited to Non-U.S. Holders that purchase our common stock pursuant to this offering and hold our common stock as a capital asset within the meaning of Code Section 1221 (generally, property held for investment).

The following discussion is for general information only and is not tax advice. Persons considering the purchase of our common stock should consult their own tax advisors concerning the U.S. federal income and estate tax consequences in light of their particular situations as well as any consequences arising under the laws of any other taxing jurisdiction, including any state, local or foreign tax consequences, and those arising under any applicable tax treaty.

Except as otherwise described in the discussion of estate tax below, a Non-U.S. Holder is a beneficial owner of our common stock that is not a U.S. Holder or an entity treated as a partnership for U.S. tax purposes. A U.S. Holder means a beneficial owner of our common stock that is for U.S. federal income tax purposes (i) an individual who is a citizen or resident of the United States, (ii) a corporation or other entity treated as a corporation created or organized in or under the laws of the United States or any political subdivision thereof, (iii) an estate the income of which is subject to U.S. federal income taxation regardless of its source or (iv) a trust if it (x) is subject to the primary supervision of a court within the United States and one or more U.S. persons have the authority to control all substantial decisions of the trust or (y) has a valid election in effect under applicable U.S. Treasury regulations to be treated as a U.S. person.

If a partnership (including any entity or arrangement treated as a partnership for U.S. federal income tax purposes) acquires our common stock, the tax treatment of a partner in the partnership will generally depend upon the status of the partner and the activities of the partnership. Persons who are partners of partnerships holding our common stock are urged to consult their tax advisors.

Distributions

Subject to the discussion below, distributions, if any, made to a Non-U.S. Holder of our common stock out of our current or accumulated earnings and profits generally will constitute dividends for U.S. tax purposes and will be subject to withholding tax at a thirty percent rate or such lower rate as may be specified by an applicable income tax treaty. To obtain a reduced rate of withholding under a treaty, a Non-U.S. Holder generally will be required to provide us with a properly-executed IRS Form W-8BEN, or other appropriate form, certifying the Non-U.S. Holder's entitlement to benefits under that treaty. Treasury regulations provide special rules to determine whether, for purposes of determining the applicability of a tax treaty, dividends paid to a Non-U.S. Holder that is an entity should be treated as paid to the entity or to those holding an interest in that entity. If a Non-U.S. Holder holds our common stock through a financial institution or other agent acting on the holder's behalf, the holder will be required to provide appropriate documentation to such agent. The holder's agent will then be required to provide certification to us or our paying agent, either directly or through other intermediaries.

Table of Contents

We generally are not required to withhold tax on dividends paid to a Non-U.S. Holder that are effectively connected with the Non-U.S. Holder's conduct of a trade or business within the United States if a properly-executed IRS Form W-8ECI, stating that the dividends are so connected (and are not exempt from U.S. federal income tax on net income under a treaty as described below), is filed with us. Effectively connected dividends will be subject to U.S. federal income tax on net income, generally in the same manner and at the regular rate as if the Non-U.S. Holder were a U.S. citizen or resident alien or a domestic corporation, as the case may be, unless a specific treaty exemption applies. If the Non-U.S. Holder is eligible for the benefits of a tax treaty between the United States and the holder's country of residence, any effectively connected dividends would generally be subject to net U.S. federal income tax only if they are also attributable to a permanent establishment maintained by the holder in the United States. A corporate Non-U.S. Holder receiving effectively connected dividends may also be subject to an additional branch profits tax, which is imposed, under certain circumstances, at a rate of thirty percent (or such lower rate as may be specified by an applicable treaty) of the corporate Non-U.S. Holder's effectively connected earnings and profits, subject to certain adjustments.

If you are eligible for a reduced rate of withholding tax pursuant to a tax treaty, you may generally obtain a refund of any excess amounts currently withheld if you timely file an appropriate claim for refund with the IRS.

To the extent distributions on our common stock, if any, exceed our current and accumulated earnings and profits, they will constitute a return of capital and will first reduce your basis in our common stock, but not below zero, and then will be treated as gain from the sale of stock.

Gain on disposition of common stock

A Non-U.S. Holder generally will not be subject to U.S. federal income tax with respect to gain realized on a sale or other disposition of our common stock unless (i) the gain is effectively connected with a trade or business of such holder in the United States and, if required by an applicable income tax treaty, attributable to a permanent establishment maintained in the United States by the Non-U.S. Holder, (ii) the Non-U.S. Holder is a nonresident alien individual and is present in the United States for 183 or more days in the taxable year of the disposition and certain other conditions are met, or (iii) we are or have been a United States real property holding corporation within the meaning of Code Section 897(c)(2) at any time within the shorter of the five-year period preceding such disposition or such holder's holding period. In general, we would be a United States real property holding corporation if interests in U.S. real estate comprised at least half of our business assets. We believe that we are not, and do not anticipate becoming, a United States real property holding corporation. Even if we are treated as a United States real property holding corporation, gain realized by a Non-U.S. Holder on a disposition of our common stock will not be subject to U.S. federal income tax so long as (1) the Non-U.S. Holder owned directly, indirectly and constructively, no more than five percent of our common stock at all times within the shorter of (a) the five year period preceding the disposition or (b) the holder's holding period and (2) our common stock is regularly traded on an established securities market. There can be no assurance that our common stock will continue to qualify as regularly traded on an established securities market.

If you are a Non-U.S. Holder described in (i) above, you will be required to pay tax on the net gain derived from the sale at generally applicable United States federal income tax rates, subject to an applicable income tax treaty providing otherwise, and corporate Non-U.S. Holders described in (i) above may be subject to the branch profits tax at a thirty percent rate or such lower rate as may be specified by an applicable income tax treaty. If you are an individual Non-U.S. Holder described in (ii) above, you will be required to pay a flat thirty percent tax (or a reduced rate under an applicable income tax treaty) on the gain derived from the sale, which gain may be offset by U.S. source capital losses if you have timely filed tax returns with respect to such losses (even though you are not considered a resident of the United States). If you are a Non-U.S. Holder described in (iii) above and an exception from U.S. federal income tax does not apply (e.g., because our common stock does not qualify as regularly traded on an established securities market or, if it does so qualify, you own more than five percent of our common stock during the relevant period), any gain derived from the sale may be treated as effectively connected with a trade or business in the United States, taxable in the manner described in (i) above.

Table of Contents

Information reporting and backup withholding

Generally, we must report to the IRS the amount of dividends paid, the name and address of the recipient, and the amount, if any, of tax withheld. A similar report is sent to the holder. Pursuant to tax treaties or certain other agreements, the IRS may make its reports available to tax authorities in the recipient's country of residence. Backup withholding will generally not apply to payments of dividends made by us or our paying agents to a Non-U.S. Holder if the holder has provided its federal taxpayer identification number, if any, or the required certification that it is not a U.S. person (which is generally provided by furnishing a properly-executed IRS Form W-8BEN), unless the payer otherwise has knowledge or reason to know that the payee is a U.S. person, or the Non-U.S. Holder otherwise establishes an exemption. The backup withholding rate is currently twenty-eight percent.

Under current U.S. federal income tax law, information reporting and backup withholding will apply to the proceeds of a disposition of our common stock effected by or through a U.S. office of a broker unless the disposing holder certifies as to its non-U.S. status or otherwise establishes an exemption. The certification procedures for claiming benefits under a tax treaty described in Distributions above will satisfy the certification requirements to avoid information reporting and backup withholding as well. Generally, U.S. information reporting and backup withholding will not apply to a payment of disposition proceeds where the transaction is effected outside the United States through a non-U.S. office of a non-U.S. broker. However, information reporting and backup withholding will apply to a payment of disposition proceeds if the broker has actual knowledge or reason to know that the holder is a U.S. person.

Backup withholding is not an additional tax. Rather, the tax liability of persons subject to backup withholding will be reduced by the amount of tax withheld. If withholding results in an overpayment of taxes, a refund may be obtained, provided that the required information is timely furnished to the IRS.

Legislation relating to foreign accounts

Legislation enacted in 2010 may impose withholding taxes on certain types of payments made to foreign financial institutions (as specifically defined in this legislation) and certain other non-U.S. entities (including financial intermediaries). Under this legislation, the failure to comply with additional certification, information reporting and other specified requirements could result in withholding tax being imposed on payments of dividends and sales proceeds to foreign intermediaries and certain Non-U.S. Holders. The legislation imposes a thirty percent withholding tax on dividends, or gross proceeds from the sale or other disposition of, common stock paid to a foreign financial institution or to a foreign non-financial entity, unless (i) the foreign financial institution undertakes certain diligence and reporting obligations or (ii) the foreign non-financial entity either certifies it does not have any substantial United States owners or furnishes identifying information regarding each substantial United States owner. If the payee is a foreign financial institution, it must enter into an agreement with the United States Treasury requiring, among other things, that it undertake to identify accounts held by certain United States persons or United States-owned foreign entities, annually report certain information about such accounts, and withhold thirty percent on payments to account holders whose actions prevent it from complying with these reporting and other requirements. The legislation applies to payments made after December 31, 2012. Prospective investors should consult their tax advisors regarding this legislation.

Federal estate tax

An individual who at the time of death is not a citizen or resident of the United States and who is treated as the owner of, or has made certain lifetime transfers of, an interest in our common stock will be required to include the value thereof in his or her taxable estate for U.S. federal estate tax purposes, and may be subject to U.S. federal estate tax unless an applicable estate tax treaty provides otherwise. The test for whether an individual is a resident of the United States for federal estate tax purposes differs from the test used for U.S. federal income tax purposes. Some individuals, therefore, may be Non-U.S. Holders for U.S. federal income tax purposes, but not for U.S. federal estate tax purposes, and vice versa.

THE PRECEDING DISCUSSION OF U.S. FEDERAL INCOME AND ESTATE TAX CONSIDERATIONS IS FOR GENERAL INFORMATION ONLY. IT IS NOT TAX ADVICE. EACH PROSPECTIVE INVESTOR SHOULD CONSULT ITS OWN TAX ADVISOR REGARDING THE TAX CONSEQUENCES OF PURCHASING, HOLDING AND DISPOSING OF OUR COMMON STOCK, INCLUDING THE CONSEQUENCES OF ANY PROPOSED CHANGE IN APPLICABLE LAW.

Table of Contents**Underwriting**

Subject to the terms and conditions set forth in the underwriting agreement dated February , 2011, among us and the underwriters named below, we have agreed to sell to the underwriters and the underwriters have severally agreed to purchase from us the number of shares of common stock indicated in the table below:

Underwriter	Number of Shares
Jefferies & Company, Inc.	
J.P. Morgan Securities LLC	
Leerink Swann LLC	
RBC Capital Markets, LLC	
Needham & Company, LLC	
William Blair & Company, LLC	
Oppenheimer & Co. Inc.	
ThinkEquity LLC	
Total	

Jefferies & Company, Inc. and J.P. Morgan Securities LLC are acting as joint book-running managers of this offering and as representatives of the underwriters named above.

The underwriting agreement provides that the obligations of the several underwriters are subject to certain conditions precedent such as the receipt by the underwriters of officers' certificates and legal opinions and approval of certain legal matters by their counsel. The underwriting agreement provides that the underwriters will purchase all of the shares if any of them are purchased, except as described below under "Option to Purchase Additional Shares." If an underwriter defaults, the underwriting agreement provides that the purchase commitments of the nondefaulting underwriters may be increased or the underwriting agreement may be terminated. We have agreed to indemnify the underwriters and certain of their controlling persons against certain liabilities, including liabilities under the Securities Act, and to contribute to payments that the underwriters may be required to make in respect of those liabilities.

The underwriters have advised us that they currently intend to make a market in the shares. However, the underwriters are not obligated to do so and may discontinue any market-making activities at any time without notice. No assurance can be given as to the liquidity of the trading market for the shares.

The underwriters are offering the shares subject to their acceptance of the shares from us and subject to prior sale. The underwriters reserve the right to withdraw, cancel or modify offers to the public and to reject orders in whole or in part.

Commission and Expenses

The underwriters have advised us that they propose to offer the shares of common stock to the public at the public offering price set forth on the cover page of this prospectus supplement and to certain dealers at that price less a concession not in excess of \$ per share. After the offering, the public offering price and concession to dealers may be reduced by the representatives. No such reduction will change the amount of proceeds to be received by us as set forth on the cover page of this prospectus supplement.

The following table shows the public offering price, the underwriting discounts and commissions that we are to pay the underwriters and the proceeds, before expenses, to us in connection with this offering. Such amounts are shown assuming both no exercise and full exercise of the underwriters' option to purchase additional shares.

	Per Share	Total Without Option to Purchase Additional Shares	Total With Option to Purchase Additional Shares
Public offering price	\$	\$	\$
Underwriting discounts and commissions paid by us	\$	\$	\$
Proceeds to us, before expenses	\$	\$	\$

S-19

Table of Contents

We estimate expenses payable by us in connection with this offering, other than the underwriting discounts and commissions referred to above, will be approximately \$400,000.

Listing

Our shares are listed on The NASDAQ Global Select Market under the trading symbol SGEN.

Option to Purchase Additional Shares

We have granted to the underwriters an option, exercisable for 30 days from the date of this prospectus supplement, to purchase up to an aggregate of additional shares of common stock at the public offering price set forth on the cover page of this prospectus supplement, less underwriting discounts and commissions. If the underwriters exercise this option, each underwriter will be obligated, subject to specified conditions, to purchase a number of additional shares proportionate to that underwriter's initial purchase commitment as indicated in the table above. This option may be exercised only if the underwriters sell more shares than the total number set forth on the cover page of this prospectus supplement.

No Sales of Similar Securities

We and our executive officers and directors, each in their individual capacity, have agreed, subject to specified exceptions, not to directly or indirectly:

offer, pledge, announce the intention to sell, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, or otherwise transfer or dispose of, any shares of common stock or any securities convertible into or exercisable or exchangeable for common stock (including without limitation, common stock which may be deemed to be beneficially owned by the applicable person in accordance with the rules and regulations of the SEC and securities which may be issued upon exercise of a stock option or warrant), or

enter into any swap or other agreement that transfers, in whole or in part, any of the economic consequences of ownership of common stock,

whether any such transaction is to be settled by delivery of common stock or such other securities, in cash or otherwise.

In addition, our executive officers and directors, each in their individual capacity, have agreed that, without the prior written consent of Jefferies & Company, Inc. and J.P. Morgan Securities LLC, they will not make any demand for or exercise any right with respect to, the registration of any shares of common stock or any security convertible into or exercisable or exchangeable for common stock.

These restrictions terminate after the close of trading of the shares of common stock on and including the 90 days after the date of this prospectus supplement with respect to us, and 45 days after the date of this prospectus supplement with respect to our executive officers and directors. However, subject to certain exceptions, in the event that either:

during the last 17 days of the applicable 45-day or 90-day restricted period, we issue an earnings release or material news or a material event relating to us occurs, or

prior to the expiration of the applicable 45-day or 90-day restricted period, we announce that we will release earnings results during the 16-day period beginning on the last day of the applicable 45-day or 90-day restricted period, then in either case the expiration of the applicable 45-day or 90-day restricted period will be extended until the expiration of the 18-day period beginning on the date of the issuance of an earnings release or the occurrence of the material news or event, as applicable, unless Jefferies & Company, Inc. and J.P. Morgan Securities LLC waive, in writing, such an extension.

Edgar Filing: SEATTLE GENETICS INC /WA - Form 424B5

Jefferies & Company, Inc. and J.P. Morgan Securities LLC may, in their sole discretion and at any time or from time to time before the termination of the applicable 45-day or 90-day period, without public notice, release all or any portion of the securities subject to lock-up agreements.

S-20

Table of Contents

Stabilization

The underwriters have advised us that, pursuant to Regulation M under the Securities Exchange Act, certain persons participating in the offering may engage in transactions, including overallocation, stabilizing bids, syndicate covering transactions or the imposition of penalty bids, which may have the effect of stabilizing or maintaining the market price of our common stock at a level above that which might otherwise prevail in the open market. Overallocation involves syndicate sales in excess of the offering size, which creates a syndicate short position. Covered short sales are sales made in an amount not greater than the underwriters' option to purchase additional shares of common stock in this offering. The underwriters may close out any covered short position by either exercising their option to purchase additional shares of common stock or purchasing shares of common stock in the open market. In determining the source of shares to close out the covered short position, the underwriters will consider, among other things, the price of shares available for purchase in the open market as compared to the price at which they may purchase shares through the option to purchase additional shares. Naked short sales are sales in excess of the option to purchase additional shares of common stock. The underwriters must close out any naked short position by purchasing shares in the open market. A naked short position is more likely to be created if the underwriters are concerned that there may be downward pressure on the price of the shares of common stock in the open market after pricing that could adversely affect investors who purchase in this offering. A stabilizing bid is a bid for the purchase of shares of common stock on behalf of the underwriters for the purpose of fixing or maintaining the price of the shares of common stock. A syndicate covering transaction is the bid for or the purchase of shares of common stock on behalf of the underwriters to reduce a short position incurred by the underwriters in connection with the offering. A penalty bid is an arrangement permitting the underwriters to reclaim the selling concession otherwise accruing to a syndicate member in connection with the offering if the shares of common stock originally sold by such syndicate member are purchased in a syndicate covering transaction and therefore have not been effectively placed by such syndicate member. Neither we nor any of the underwriters makes any representation or prediction as to the direction or magnitude of any effect that the transactions described above may have on the price of our common stock. The underwriters are not obligated to engage in these activities and, if commenced, any of the activities may be discontinued at any time.

Electronic Distribution

This prospectus supplement and the accompanying prospectus in electronic format may be made available by e-mail or on the web sites or through online services maintained by one or more of the underwriters or their affiliates. In those cases, prospective investors may view offering terms online and may be allowed to place orders online. The underwriters may agree with us to allocate a specific number of shares of common stock for sale to online brokerage account holders. Any such allocation for online distributions will be made by the underwriters on the same basis as other allocations. Other than this prospectus supplement and the accompanying prospectus in electronic format, the information on the underwriters' web sites and any information contained in any other web site maintained by any of the underwriters is not part of this prospectus supplement or the accompanying prospectus, has not been approved and/or endorsed by us or the underwriters and should not be relied upon by investors.

Affiliations

The underwriters and certain of their affiliates are full service financial institutions engaged in various activities, which may include securities trading, commercial and investment banking, financial advisory, investment management, investment research, principal investment, hedging, financing and brokerage activities. The underwriters and certain of their affiliates have, from time to time, performed, and may in the future perform, various financial advisory and investment banking services for us, for which they received or will receive customary fees and expenses.

In the ordinary course of their various business activities, the underwriters and certain of their affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) and financial instruments (including bank loans) for their own account and for the accounts of their customers, and such investment and securities activities may involve our securities and/or instruments. The underwriters and certain of their affiliates may also make investment recommendations and/or publish or express independent research views in respect of such securities or instruments and may at any time hold, or recommend to clients that they acquire, long and/or short positions in such securities and instruments.

Table of Contents

Notice to Investors

European Economic Area

In relation to each Member State of the European Economic Area which has implemented the Prospectus Directive (as defined below) (each, a Relevant Member State), with effect from and including the date on which the Prospectus Directive is implemented in that Relevant Member State, or the Relevant Implementation Date, an offer of our common stock to the public may not be made in that Relevant Member State prior to the publication of a prospectus in relation to our common stock which has been approved by the competent authority in that Relevant Member State or, where appropriate, approved in another Relevant Member State and notified to the competent authority in that Relevant Member State, all in accordance with the Prospectus Directive, except that an offer to the public in that Relevant Member State of any shares of our common stock may be made at any time under the following exemptions under the Prospectus Directive if they have been implemented in the Relevant Member State:

- (a) to legal entities which are authorized or regulated to operate in the financial markets or, if not so authorized or regulated, whose corporate purpose is solely to invest in securities;
- (b) to any legal entity which has two or more of (1) an average of at least 250 employees during the last financial year; (2) a total balance sheet of more than 43,000,000 and (3) an annual net turnover of more than 50,000,000, as shown in its last annual or consolidated accounts;
- (c) to fewer than 100 natural or legal persons per Relevant Member State (other than qualified investors as defined in the Prospectus Directive); or
- (d) in any other circumstances falling within Article 3(2) of the Prospectus Directive, provided that no such offer of our common stock shall result in a requirement for the publication by us or any underwriter of a prospectus pursuant to Article 3 of the Prospectus Directive.

For the purposes of this provision, the expression an offer of our common stock to the public in relation to any shares of our common stock in any Relevant Member State means the communication in any form and by any means of sufficient information on the terms of the offer and our common stock to be offered so as to enable an investor to decide to purchase or subscribe for our common stock, as the same may be varied in that Member State by any measure implementing the Prospectus Directive in that Member State and the expression Prospectus Directive means Directive 2003/71/EC and includes any relevant implementing measure in each Relevant Member State.

United Kingdom

Shares of our common stock may not be offered or sold and will not be offered or sold to any persons in the United Kingdom other than to persons whose ordinary activities involve them acquiring, holding, managing or disposing of investments (as principal or as agent) for the purposes of their businesses or otherwise in circumstances which have not resulted or will not result in an offer to the public in the United Kingdom within the meaning of the Financial Services and Markets Act 2000, or the FSMA.

In addition, any invitation or inducement to engage in investment activity (within the meaning of section 21 of the FSMA) in connection with the issue or sale of shares of our common stock may only be communicated or caused to be communicated in circumstances in which Section 21(1) of the FSMA does not apply to us. Without limitation to the other restrictions referred to herein, this prospectus supplement and the accompanying prospectus are directed only at (1) persons outside the United Kingdom or (2) persons who:

- (a) are qualified investors as defined in section 86(7) of FSMA, being persons falling within the meaning of article 2.1(e)(i), (ii) or (iii) of the Prospectus Directive; and

- (b) are either persons who fall within article 19(1) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005, as amended, or Order, or are persons who fall within article 49(2)(a) to (d) (high net worth companies, unincorporated associations, etc.) of the Order; or

S-22

Table of Contents

(c) to whom it may otherwise lawfully be communicated in circumstances in which Section 21(1) of the FSMA does not apply. Without limitation to the other restrictions referred to herein, any investment or investment activity to which this prospectus supplement and the accompanying prospectus relate is available only to, and will be engaged in only with, such persons, and persons within the United Kingdom who receive this communication (other than persons who fall within (2) above) should not rely or act upon this communication.

Italy

This prospectus supplement and the accompanying prospectus have not been and will not be filed with or cleared by the Italian securities exchange commission (Commissione Nazionale per le società e la Borsa the CONSOB) pursuant to Legislative Decree No. 58 of 24 February 1998 (as amended, the Finance Law) and to CONSOB Regulation No. 11971 of 14 May 1999 (as amended, the Issuers Regulation). Accordingly, copies of this prospectus supplement and the accompanying prospectus or any other document relating to our common stock may not be distributed, made available or advertised in Italy, nor may our common stock be offered, purchased, sold, promoted, advertised or delivered, directly or indirectly, to the public other than (i) to Professional Investors (such being the persons and entities as defined pursuant to article 31(2) of CONSOB Regulation No. 11522 of 1 July 1998, as amended, the Intermediaries Regulation) pursuant to article 100 of the Finance Law; (ii) to prospective investors where the offer of our common stock relies on the exemption from the investment solicitation rules pursuant to, and in compliance with, the conditions set out by article 100 of the Finance Law and article 33 of the Issuers Regulation, or by any applicable exemption; provided that any such offer, sale, promotion, advertising or delivery of our common stock or distribution of this prospectus supplement and the accompanying prospectus, or any part thereof, or of any other document or material relating to our common stock in Italy is made: (a) by investment firms, banks or financial intermediaries authorized to carry out such activities in the Republic of Italy in accordance with the Finance Law, the Issuers Regulation, Legislative Decree No. 385 of 1 September 1993 (as amended, the Banking Law), the Intermediaries Regulation, and any other applicable laws and regulations; and (b) in compliance with any applicable notification requirement or duty which may, from time to time, be imposed by CONSOB, Bank of Italy or by any other competent authority.

Germany

Any offer or solicitation of securities within Germany must be in full compliance with the German Securities Prospectus Act (Wertpapierprospektgesetz WpPG). The offer and solicitation of securities to the public in Germany requires the publication of a prospectus that has to be filed with and approved by the German Federal Financial Services Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht BaFin). This prospectus supplement and the accompanying prospectus have not been and will not be submitted for filing and approval to the BaFin and, consequently, will not be published. Therefore, this prospectus supplement and the accompanying prospectus do not constitute a public offer under the German Securities Prospectus Act (Wertpapierprospektgesetz). This prospectus supplement, the accompanying prospectus and any other document relating to our common stock, as well as any information contained therein, must therefore not be supplied to the public in Germany or used in connection with any offer for subscription of our common stock to the public in Germany, any public marketing of our common stock or any public solicitation for offers to subscribe for or otherwise acquire our common stock. This prospectus supplement, the accompanying prospectus and other offering materials relating to the offer of our common stock are strictly confidential and may not be distributed to any person or entity other than the designated recipients hereof.

France

This prospectus supplement and the accompanying prospectus have not been prepared in the context of a public offering of financial securities in France within the meaning of Article L.411-1 of the French Code Monétaire et Financier and Title I of Book II of the Règlement Général of the Autorité des marchés financiers (the AMF) and therefore has not been and will not be filed with the AMF for prior approval or submitted for clearance to the AMF. Consequently, the shares of our common stock may not be, directly or indirectly, offered or sold to the public in France and offers and sales of the shares of our common stock may only be made in France to qualified investors (investisseurs qualifiés) acting for their own, as defined in and in accordance with Articles L.411-2 and D.411-1 to D.411-4, D.734-1, D.744-1, D.754-1 and D.764-1 of the French Code Monétaire et Financier. None of this prospectus supplement, the accompanying

Table of Contents

prospectus or any other offering material may be released, issued or distributed to the public in France or used in connection with any offer for subscription on sale of the shares of our common stock to the public in France. The subsequent direct or indirect retransfer of the shares of our common stock to the public in France may only be made in compliance with Articles L.411-1, L.411-2, L.412-1 and L.621-8 through L.621-8-3 of the French Code Monétaire et Financier.

Sweden

This is not a prospectus under, and has not been prepared in accordance with the prospectus requirements provided for in, the Swedish Financial Instruments Trading Act [lagen (1991:980) om handel med finansiella instrument] nor any other Swedish enactment. Neither the Swedish Financial Supervisory Authority nor any other Swedish public body has examined, approved, or registered this document

S-24

Table of Contents

Legal Matters

The validity of the shares of common stock offered by this prospectus supplement and the accompanying prospectus will be passed upon for us by Cooley LLP, Seattle, Washington. As of the date of this prospectus supplement, certain partners and associates of Cooley LLP own an aggregate of approximately 7,496 shares of our common stock. Sonya F. Erickson, a partner of Cooley LLP, serves as our Assistant Secretary. Latham & Watkins LLP, San Diego, California, is counsel for the underwriters in connection with this offering.

Experts

The financial statements and management's assessment of the effectiveness of internal control over financial reporting (which is included in Management's Report on Internal Control over Financial Reporting) incorporated in this prospectus supplement by reference to the Annual Report on Form 10-K for the year ended December 31, 2009 have been so incorporated in reliance on the report of PricewaterhouseCoopers LLP, an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

Where You Can Find More Information

This prospectus supplement and the accompanying prospectus are part of the registration statement on Form S-3 we filed with the SEC under the Securities Act on May 22, 2009, and do not contain all the information set forth in the registration statement. Whenever a reference is made in this prospectus supplement or the accompanying prospectus to any of our contracts, agreements or other documents, the reference may not be complete and you should refer to the exhibits that are a part of the registration statement or the exhibits to the reports or other documents incorporated by reference in this prospectus supplement and the accompanying prospectus for a copy of such contract, agreement or other document. Because we are subject to the information and reporting requirements of the Exchange Act, we file annual, quarterly and current reports, proxy statements and other information with the SEC. Our SEC filings are available to the public over the Internet at the SEC's website at <http://www.sec.gov>. You may also read and copy any document we file at the SEC's Public Reference Room at 100 F Street, N.E., Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for further information on the operation of the Public Reference Room.

Information Incorporated by Reference

The SEC allows us to incorporate by reference information from other documents that we file with them, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is considered to be part of this prospectus supplement and the accompanying prospectus. Information contained in this prospectus supplement and the accompanying prospectus and information that we file with the SEC in the future and incorporate by reference in this prospectus supplement and the accompanying prospectus will automatically update and supersede this information. We incorporate by reference the documents listed below and any future filings (other than Current Reports on Form 8-K furnished under Item 2.02 or Item 7.01 and exhibits filed on such form that are related to such items) we make with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act, after the date of the prospectus supplement and before the sale of all the securities covered by this prospectus supplement (Commission File No. 0-32405):

our Annual Report on Form 10-K for the year ended December 31, 2009, filed with the SEC on March 12, 2010, as amended by Amendment No. 1 to Annual Report on Form 10-K/A, filed with the SEC on November 26, 2010;

the information specifically incorporated by reference into our Annual Report on Form 10-K for the year ended December 31, 2009 from our definitive proxy statement on Schedule 14A, filed with the SEC on April 9, 2010;

Table of Contents

our Quarterly Reports on Form 10-Q for the quarterly periods ended March 31, 2010, June 30, 2010 and September 30, 2010, filed with the SEC on May 7, 2010, August 6, 2010 and November 5, 2010, respectively;

our Current Reports on Form 8-K filed with the SEC on February 12, 2010, May 26, 2010, September 13, 2010, September 27, 2010, October 1, 2010, October 12, 2010 and December 17, 2010 (other than the portions of these reports furnished but not filed pursuant to SEC rules and the exhibits filed on such form that relate to such portions);
and

the description of our common stock contained in our Registration Statement on Form 8-A filed with the SEC on February 28, 2001, including any amendments or reports filed for the purpose of updating such description.

You may request a copy of these filings, at no cost, by telephoning our Investor Relations department at (425) 527-4000 or writing us at:

Investor Relations

Seattle Genetics, Inc.

21823 30th Drive SE

Bothell, WA 98021

S-26

Table of Contents

PROSPECTUS

SEATTLE GENETICS, INC.

Common Stock

From time to time, we may offer and sell shares of common stock in amounts, at prices and on terms described in one or more supplements to this prospectus.

This prospectus describes some of the general terms that may apply to an offering of our common stock. The specific terms and any other information relating to a specific offering will be set forth in a post-effective amendment to the registration statement of which this prospectus is a part or in a supplement to this prospectus, or may be set forth in one or more documents incorporated by reference into this prospectus. We may also authorize one or more free writing prospectuses to be provided to you in connection with a specific offering. You should read this prospectus, the applicable prospectus supplement and any related free writing prospectuses that we have authorized for use in connection with a specific offering, as well as any documents incorporated by reference in this prospectus and the applicable prospectus supplement, carefully before you invest.

We may offer and sell shares of common stock to or through one or more underwriters, dealers and agents, or directly to purchasers, on a continuous or delayed basis. The supplements to this prospectus will provide the specific terms of the plan of distribution. The net proceeds we expect to receive from sales by us will be set forth in the applicable prospectus supplement.

Our common stock is listed on The NASDAQ Global Market under the trading symbol SGEN. On May 21, 2009, the last reported sale price of our common stock was \$8.91 per share.

Investing in our common stock involves a high degree of risk. You should review carefully the risks and uncertainties described under the heading Risk Factors contained in the applicable prospectus supplement and in any related free writing prospectuses that we have authorized for use in connection with a specific offering, and under similar headings in the other documents that are incorporated by reference into this prospectus.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

The date of this prospectus is May 22, 2009

Table of Contents

TABLE OF CONTENTS

	PAGE
<u>ABOUT THIS PROSPECTUS</u>	1
<u>RISK FACTORS</u>	1
<u>FORWARD-LOOKING STATEMENTS</u>	1
<u>USE OF PROCEEDS</u>	2
<u>DESCRIPTION OF CAPITAL STOCK</u>	3
<u>VALIDITY OF COMMON STOCK</u>	6
<u>EXPERTS</u>	6
<u>WHERE YOU CAN FIND MORE INFORMATION</u>	6

Table of Contents

ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement on Form S-3 that we filed with the Securities and Exchange Commission, or the SEC, using the shelf registration process. By using a shelf registration statement, we may offer and sell from time to time in one or more offerings the common stock described in this prospectus. No limit exists on the aggregate number of shares of common stock we may sell pursuant to the registration statement.

You should rely only on the information contained in, or incorporated by reference into, this prospectus and any applicable prospectus supplement, along with the information contained in any free writing prospectuses that we have authorized for use in connection with a specific offering. We have not authorized anyone to provide you with different information. This document may only be used where it is legal to sell these securities. You should not assume that the information contained in this prospectus, in any applicable prospectus supplement or in any related free writing prospectus, is accurate as of any date other than its date regardless of the time of delivery of the prospectus, prospectus supplement or related free writing prospectus, or any sale of the common stock. If there is any inconsistency between the information in this prospectus and the applicable prospectus supplement, you should rely on the information in the prospectus supplement.

Seattle Genetics® and *seagen* are our registered trademarks in the United States. All other trademarks, tradenames and service marks included or incorporated by reference in this prospectus, any accompanying prospectus supplement and any related free writing prospectus are the property of their respective owners.

We urge you to read carefully this prospectus, any applicable prospectus supplement and any related free writing prospectus that we have authorized for use in connection with a specific offering, together with the information incorporated herein by reference as described under the heading *Where You Can Find More Information*, before deciding whether to invest in any of the common stock being offered.

References in this prospectus to Seattle Genetics, we, us and our refer to Seattle Genetics, Inc., a Delaware corporation. Our principal executive offices are located at 21823 30th Drive SE, Bothell, WA 98021 and our telephone number is (425) 527-4000. Our web site address is <http://www.seagen.com>. The information contained in, or that can be accessed through, our web site is not part of, and is not incorporated by reference in, this prospectus.

RISK FACTORS

Investing in our common stock involves a high degree of risk. You should consider carefully the risk factors identified in any applicable prospectus supplement and in any related free writing prospectuses that we have authorized for use in connection with a specific offering, as well as in our most recent annual and quarterly filings with the SEC, in addition to the other information contained in this prospectus, any applicable prospectus supplement, the documents incorporated by reference herein or therein, and in any free writing prospectuses that we have authorized for use in connection with a specific offering, before deciding whether to purchase any of our common stock. Each of the risk factors could adversely affect our business, operating results and financial condition, as well as adversely affect the value of an investment in our common stock, and you may lose all or part of your investment.

FORWARD-LOOKING STATEMENTS

This prospectus and the documents incorporated by reference contain forward-looking statements that are based on our management's beliefs and assumptions and on information currently available to our management. Discussions containing these forward-looking statements may be found, among other places, in *Business*,

Table of Contents

Risk Factors and Management's Discussion and Analysis of Financial Condition and Results of Operations incorporated by reference from our most recent annual report on Form 10-K and in our most recent quarterly report on Form 10-Q, as well as any amendments thereto reflected in subsequent filings with the SEC. Forward-looking statements include, but are not limited to, statements about:

the development of our product candidates;

the success and timing of our preclinical studies and clinical trials, and the commencement of future clinical trials;

the submission and timing of applications for regulatory approvals;

the establishment and development of collaborative partnerships;

our ability to identify new potential product candidates;

our ability to achieve commercial acceptance of our product candidates if approved for commercial sale;

our ability to scale-up our manufacturing capabilities and facilities;

the use of proceeds from any offering;

our projected financial and operating results;

our projected capital expenditures; and

our liquidity.

In some cases, you can identify forward-looking statements by terms such as may, will, should, could, would, expects, plans, anticipates, believes, estimates, projects, predicts, potential and similar expressions intended to identify forward-looking statements. These statements involve known and unknown risks, uncertainties and other factors that may cause our actual results, performance time frames or achievements to be materially different from any future results, performance, time frames or achievements expressed or implied by the forward-looking statements. We discuss many of these risks, uncertainties and other factors in greater detail under the heading Risk Factors contained in the applicable prospectus supplement, in any related free writing prospectuses that we have authorized for use in connection with a specific offering, and in our most recent annual report on Form 10-K and in our most recent quarterly report on Form 10-Q, as well as any amendments thereto reflected in subsequent filings with the SEC. Given these risks, uncertainties and other factors, you should not place undue reliance on these forward-looking statements. Also, these forward-looking statements represent our estimates and assumptions only as of the date such forward-looking statements are made. You should read carefully this prospectus, any applicable prospectus supplement and any related free writing prospectuses that we have authorized for use in connection with a specific offering, together with the information incorporated herein by reference as described under the heading Where You Can Find More Information, completely and with the understanding that our actual future results may be materially different from what we expect. We hereby qualify all of our forward-looking statements by these cautionary statements. Except as required by law, we assume no obligation to update these forward-looking statements publicly, or to update the reasons actual results could differ materially from those anticipated in these forward-looking statements, even if new information becomes available in the future.

USE OF PROCEEDS

Except as described in any prospectus supplement or in any related free writing prospectus that we have authorized for use in connection with a specific offering, we anticipate using the net proceeds to us from the sale of our common stock for clinical and preclinical development and manufacturing of existing product candidates, discovery and development of additional product opportunities, capital expenditures and working capital and other general corporate purposes. Although we currently have no commitments or agreements to acquire or

Table of Contents

invest in complementary businesses, technologies, product candidates or other intellectual property, our management will have broad discretion as to the allocation of the net proceeds received in any offering and may use these proceeds for that purpose in the future. Pending use of the net proceeds, we intend to invest the net proceeds in interest-bearing, investment-grade securities.

DESCRIPTION OF CAPITAL STOCK

Our authorized capital stock consists of 150,000,000 shares of common stock, \$0.001 par value per share, and 5,000,000 shares of preferred stock, \$0.001 par value per share. We may issue shares of our common stock from time to time in one or more offerings. We will set forth in the applicable prospectus supplement a description of the terms of the offering of common stock, including the offering price, the net proceeds to us, and other offering material relating to such offering.

The following summary description of our common and preferred stock is based on the provisions of our fourth amended and restated certificate of incorporation, amended and restated bylaws, the applicable provisions of the Delaware General Corporation Law and the applicable provisions of the Washington Business Corporation Act. This information may not be complete in all respects and is qualified entirely by reference to the provisions of our fourth amended and restated certificate of incorporation, our amended and restated bylaws, the Delaware General Corporation Law and the applicable provisions of the Washington Business Corporation Act. For information on how to obtain copies of our fourth amended and restated certificate of incorporation and our amended and restated bylaws, which are exhibits to the registration statement of which this prospectus forms a part, see [Where You Can Find More Information](#).

Common Stock

As of May 21, 2009, there were 86,818,796 shares of common stock outstanding, held of record by approximately 118 stockholders. The holders of common stock are entitled to one vote per share on all matters to be voted on by the stockholders. Subject to the preferences of any outstanding shares of preferred stock, the holders of common stock are entitled to receive ratably any dividends our Board of Directors declares out of funds legally available for the payment of dividends. If we are liquidated, dissolved or wound up, the holders of common stock are entitled to share pro rata all assets remaining after payment of liabilities and liquidation preferences of any outstanding shares of preferred stock. Holders of common stock have no preemptive rights or rights to convert their common stock into any other securities. There are no redemption or sinking fund provisions applicable to the common stock. All outstanding shares of common stock are, and the shares of common stock to be offered under this prospectus and applicable prospectus supplements will be, fully paid and nonassessable.

Preferred Stock

As of May 21, 2009, none of the 5,000,000 authorized shares of preferred stock were outstanding. Pursuant to our fourth amended and restated certificate of incorporation, our Board of Directors has the authority, without further action by the stockholders, to issue the shares of preferred stock in one or more series. Our Board of Directors also has the authority to fix the designations, powers, preferences, privileges and relative, participating, optional or special rights and the qualifications, limitations or restrictions of any preferred stock issued, including dividend rights, conversion rights, voting rights, terms of redemption and liquidation preferences, any or all of which may be greater than the rights of the common stock. Our Board of Directors, without stockholder approval, may issue preferred stock with voting, conversion or other rights that are superior to the voting and other rights of the holders of common stock. The issuance of preferred stock may have the effect of delaying, deferring or preventing a change of control of Seattle Genetics without further action by the stockholders, and may have the effect of delaying or preventing changes in management of Seattle Genetics. In addition, the issuance of preferred stock may decrease the market price of our common stock.

Table of Contents

Warrants

As of May 21, 2009 we had warrants outstanding to purchase 1,925,000 shares of common stock at an exercise price of \$6.25 per share. The warrants are exercisable in whole or in part at any time on or before December 31, 2011, and expire if not exercised prior to such time. The warrants provide for a cashless exercise by the warrant holder, if available. The warrant exercise price and the number of shares subject to the warrants are subject to adjustment in certain events including: stock subdivisions, combinations, splits, stock dividends, capital reorganizations, or capital reclassifications of our common stock. The preceding summary is qualified in its entirety by reference to the terms and provisions of the form of Warrant attached as an exhibit to our current report on Form 8-K filed with the SEC on May 15, 2003.

Registration Rights

Pursuant to an Investor Rights Agreement, dated July 8, 2003, certain holders of our common stock are entitled to registration rights under the Securities Act with respect to their shares of common stock, as applicable, if we propose to register any of our common stock. Such holders are entitled to notice of the registration and to include shares of their common stock in the registration at our expense. In addition, such holders are entitled to require us to file a registration statement under the Securities Act at our expense. Furthermore, such holders may require us to file additional registration statements on Form S-3 at our expense. All of these registration rights are subject to conditions and limitations, including the right of the underwriters of an offering to limit the number of shares included in such registration and our right to decline to affect such a registration if the anticipated aggregate offering price in such registration is below a minimum amount. Pursuant to the terms of a stock purchase agreement, dated January 27, 2009, we entered into with certain entities affiliated with Baker Brothers Investments, we agreed to use our commercially reasonable efforts to treat the shares issued pursuant to such stock purchase agreement as shares entitled to registration rights under the Investor Rights Agreement.

Anti-takeover Effects of Provisions of Delaware Law, Washington Law and Our Charter Documents

Charter Documents

As noted above, our Board of Directors, without stockholder approval, has the authority under our fourth amended and restated certificate of incorporation to issue preferred stock with rights superior to the rights of the holders of common stock. As a result, the issuance of preferred stock may have the effect of delaying, deferring or preventing a change of control of Seattle Genetics without further action by the stockholders and may adversely affect the voting and other rights of the holders of common stock.

Our fourth amended and restated certificate of incorporation provides for our Board of Directors to be divided into three classes, with staggered three-year terms. As a result, only one class of directors will be elected at each annual meeting of stockholders, with the other classes continuing for the remainder of their respective three-year terms. Stockholders have no cumulative voting rights, and the stockholders representing a majority of the shares of common stock entitled to vote in any election of directors may elect all of the directors standing for election.

Our fourth amended and restated certificate of incorporation also requires that any action required or permitted to be taken by our stockholders must be effected at a duly called annual or special meeting of the stockholders and may not be effected by a consent in writing, and that the stockholders may amend our bylaws or adopt new bylaws only by the affirmative vote of 66-2/3% of the outstanding voting securities. A special meeting of the stockholders may be called only by our Board of Directors, our Chairman, our President, or by one or more stockholders holding shares in the aggregate entitled to cast not less than 50% of the votes at that meeting. These provisions may have the effect of delaying, deferring or preventing a change in control and may also delay or prevent changes in management of Seattle Genetics, which could have an adverse effect on the market price of our stock.

Table of Contents

These and other provisions are intended to enhance the likelihood of continued stability in the composition of our Board of Directors and to discourage certain types of transactions that may involve an actual or threatened change of control. However, such provisions could have the effect of discouraging others from making tender offers for our shares and, as a consequence, such provisions also may inhibit fluctuations in the market price of our shares that could result from actual or rumored takeover attempts.

Section 203 of the Delaware General Corporation Law

We are subject to the provisions of Section 203 of the Delaware General Corporation Law. In general, the statute prohibits a publicly held Delaware corporation from engaging in a business combination with an interested stockholder for a period of three years after the date of the transaction in which the person became an interested stockholder, unless the business combination is approved in a prescribed manner. For purposes of Section 203, a business combination includes a merger, asset sale or other transaction resulting in a financial benefit to the interested stockholder, and an interested stockholder is a person who, together with affiliates and associates, owns (or within three years prior, did own) 15% or more of the corporation's voting stock.

Chapter 23B.19 of the Washington Business Corporation Act

We are also subject to the provisions of Chapter 23B.19 of the Washington Business Corporation Act, or the WBCA, that imposes restrictions on certain transactions between a corporation and certain significant stockholders. The WBCA generally prohibits a target corporation (as defined in the WBCA) from engaging in certain significant business transactions with an acquiring person, which is defined as a person or group of persons that beneficially owns 10% or more of the voting securities of the target corporation, for a period of five years after such acquisition, unless the transaction or acquisition of shares is approved by a majority of the members of the target corporation's Board of Directors prior to the time of the acquisition or at or subsequent to the acquiring person's share acquisition time, such significant business transaction is approved by a majority of the members of the target corporation's Board of Directors and authorized at an annual or special meeting of stockholders by the affirmative vote of at least two-thirds of the outstanding voting shares, except for shares beneficially owned by or under the voting control of the acquiring person. Such prohibited transactions include, among other things:

a merger or consolidation with, disposition of assets to, or issuance or redemption of stock to or from, the acquiring person;

termination of 5% or more of the employees of the target corporation as a result of the acquiring person's acquisition of 10% or more of the shares; or

allowing the acquiring person to receive any disproportionate benefit as a stockholder.

After the five-year period, a significant business transaction may occur if it complies with fair price provisions specified in the statute. A corporation may not opt out of this statute. Depending on whether Seattle Genetics meets the definition of a target corporation under the WBCA, Chapter 23B.19 of the WBCA may have the effect of delaying, deterring or preventing a change in control of Seattle Genetics.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is Mellon Investor Services LLC. Its address is P.O. Box 3316, South Hackensack, NJ 07606 and its telephone number is (800) 522-6645.

NASDAQ Global Market Listing

Our common stock is listed on The NASDAQ Global Market under the symbol SGEN.

Table of Contents

VALIDITY OF COMMON STOCK

The validity of the shares of common stock offered hereby will be passed upon for us by Cooley Godward Kronish LLP, Seattle, Washington, and for any underwriters, dealers or agents by counsel named in the applicable prospectus supplement. As of the date of this prospectus, certain partners and associates of Cooley Godward Kronish LLP own an aggregate of approximately 7,496 shares of our common stock. Sonya F. Erickson, a partner of Cooley Godward Kronish LLP, serves as our Assistant Secretary.

EXPERTS

The financial statements and management's assessment of the effectiveness of our internal control over financial reporting (which is included in Management's Report on Internal Control Over Financial Reporting) incorporated in this prospectus by reference to the Annual Report on Form 10-K for the year ended December 31, 2008 have been so incorporated in reliance on the report of PricewaterhouseCoopers LLP, an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

WHERE YOU CAN FIND MORE INFORMATION

We are a reporting company and file annual, quarterly and current reports, proxy statements and other information with the SEC. This prospectus is part of a registration statement on Form S-3 filed by us with the SEC under the Securities Act of 1933, as amended. As permitted by the SEC, this prospectus does not contain all the information in the registration statement filed with the SEC. For a more complete understanding of an offering of our common stock, you should refer to the complete registration statement on Form S-3 that may be obtained from the location described below. You may read and copy the registration statement, as well as our reports, proxy statements and other information, at the SEC's public reference room at 100 F Street, N.E., Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for more information about the operation of the public reference room. The SEC maintains an Internet site that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC, including Seattle Genetics. The SEC's Internet site can be found at <http://www.sec.gov>.

The SEC allows us to incorporate by reference information from other documents that we file with it, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is considered to be part of this prospectus and any accompanying prospectus supplement. We incorporate by reference the following information or documents that we have filed with the SEC (Commission File No. 0-32405):

our Annual Report on Form 10-K for the year ended December 31, 2008 filed with the SEC on March 13, 2009;

the information specifically incorporated by reference into our Annual Report on Form 10-K for the year ended December 31, 2008 from our definitive proxy statement on Schedule 14A, filed with the SEC on April 9, 2009;

our Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2009 filed with the SEC on May 8, 2009;

our Current Reports on Form 8-K filed with the SEC on January 21, 2009, January 26, 2009, January 27, 2009, January 28, 2009, February 19, 2009 and May 21, 2009 (other than any portions of these reports furnished but not filed pursuant to SEC rules and the exhibits filed on such form that relate to such portions); and

the description of our common stock contained in our Registration Statement on Form 8-A filed with the SEC on February 28, 2001, including any amendments or reports filed for the purpose of updating such description.

Table of Contents

Any information in any of the foregoing documents will automatically be deemed to be modified or superseded to the extent that information in this prospectus or in a later filed document that is incorporated or deemed to be incorporated herein by reference modifies or replaces such information.

We also incorporate by reference any future filings (other than Current Reports on Form 8-K furnished under Item 2.02 or Item 7.01 thereof and exhibits filed on such form that are related to such items) made with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934, as amended, until we file a post-effective amendment that indicates the termination of the offering of the securities made by this prospectus. Information in such future filings updates and supplements the information provided in this prospectus. Any statements in any such future filings will automatically be deemed to modify and supersede any information in any document we previously filed with the SEC that is incorporated or deemed to be incorporated herein by reference to the extent that statements in the later filed document modify or replace such earlier statements.

You may request a copy of any or all of the documents incorporated by reference (including exhibits to these documents), at no cost, by telephoning our Investor Relations department at (425) 527-4000 or writing us at:

Investor Relations

Seattle Genetics, Inc.

21823 30th Drive SE

Bothell, WA 98021

Table of Contents

Shares

Common Stock

PROSPECTUS SUPPLEMENT

Joint Book-Running Managers

Jefferies

J.P. Morgan

Co-Lead Managers

Leerink Swann

RBC Capital Markets

Co-Managers

Needham & Company, LLC

William Blair & Company

Oppenheimer & Co.

ThinkEquity LLC

February , 2011

