

**WHERE YOUR PASSION DRIVES PROGRESS**



**W** UNIVERSITY *of* WASHINGTON

**2019-2021 HEOR FELLOWSHIP PROGRAM**

# TRANSFORMATIVE THERAPIES

## TARGETING CANCER

Seattle Genetics is an emerging multi-product, global biotechnology company that develops and commercializes transformative therapies targeting cancer to make a meaningful difference in people's lives. ADCETRIS® (brentuximab vedotin) utilizes the company's industry-leading antibody-drug conjugate (ADC) technology and is currently approved for the treatment of multiple CD30-expressing lymphomas. Beyond ADCETRIS, the company has established a pipeline of novel targeted therapies at various stages of clinical testing, including three in ongoing pivotal trials for solid tumors. In addition, we are leveraging our expertise in empowered antibodies to build a portfolio of proprietary immuno-oncology agents in clinical trials targeting hematologic malignancies and solid tumors.

### ADCETRIS: FDA/EMA APPROVED PRODUCT AND EXPANDING GLOBAL BRAND

- Antibody-drug conjugate that targets CD30, which is expressed in classical Hodgkin lymphoma as well as other types of lymphoma
- Approved in the U.S. for 5 indications including frontline Stage 3 or 4 Hodgkin lymphoma (HL) and relapsed HL; commercially available in 71 countries
- Ongoing phase 3 trials in frontline peripheral T-cell lymphoma with data expected early in 4Q-2018 as well as in combination with the checkpoint inhibitor, nivolumab
- Seattle Genetics commercializes in the U.S. and Canada and Takeda commercializes in the rest of world
- Global sales reached approximately \$640 million in 2017

### ROBUST PRODUCT PIPELINE: ADCETRIS AND PROGRAMS IN PIVOTAL TRIALS

PROGRAM	TUMOR TYPE	PHASE 1	PHASE 2	PHASE 3	PARTNER
ADCETRIS (Brentuximab Vedotin)	Frontline peripheral T-cell lymphoma	ECHELON-2 data expected in 2018			
	Relapsed Hodgkin lymphoma (HL)	CheckMate 812: combination with nivolumab			
	Relapsed non-Hodgkin lymphoma	CheckMate 436: combination with nivolumab			
	Frontline HL (patients 60+)	Combination with nivolumab			
	Second-line HL	Combination with nivolumab			
	Relapsed HL (pediatrics)	CheckMate 744: combination with nivolumab			
Enfortumab Vedotin	Metastatic urothelial cancer	EV-301: post-checkpoint inhibitor	EV-201: post-checkpoint inhibitor	Pivotal	
	First-line and second-line urothelial cancer	EV-103: combination w/ checkpoint inhibitor			
Tucatinib	HER2+ metastatic breast cancer	HER2CLIMB	Pivotal		
Tisotumab Vedotin	Recurrent/metastatic cervical cancer	innovaTV 204	Pivotal		
	Solid tumors	innovaTV 207			

Seattle Genetics is also advancing several earlier-stage proprietary targeted therapies in clinical and preclinical development not shown on the pipeline chart above. Visit our website for more details.

### QUICK FACTS

**NASDAQ SYMBOL:** SGEN

**EMPLOYEES:** 1,225+ worldwide

**MANAGEMENT:**

Clay Siegall, Ph.D., *President, CEO & Chairman*

Todd Simpson, *CFO*

Roger Dansey, M.D., *CMO*

**HEADQUARTERS / EUROPEAN OFFICE:**

Bothell, WA USA / Zug, Switzerland

**COMMERCIAL PRODUCT:**

ADCETRIS® (brentuximab vedotin)

**1H-2018 AS OF 6/30/18:**

**TOTAL REVENUE:** \$311 million

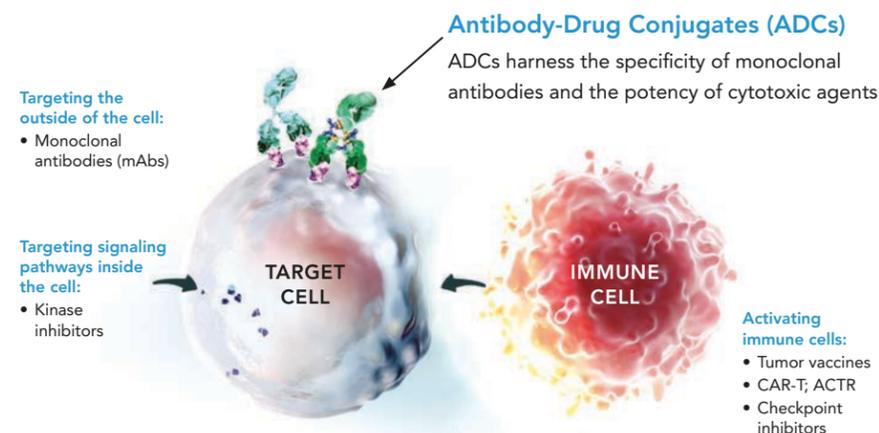
**R&D EXPENSE:** \$275 million

**CASH:** \$458 million

**SHARES OUTSTANDING:** ~158 million

**WEBSITE:** [www.seattlegenetics.com](http://www.seattlegenetics.com)

### ADVANCING TARGETED THERAPIES FOR CANCER: ADC TECHNOLOGY AND BEYOND



Various combinations of these novel modalities are likely to be the future of treatment in oncology

### POTENTIAL TO IMPROVE PATIENT OUTCOMES THROUGH MULTIPLE APPROACHES TO TARGETED THERAPIES

We are developing highly-specific targeted therapies that provide multiple approaches for the treatment of cancer. These include agents that are directed toward receptors on the outside of cells, the signaling pathways within the cell, and the activation of immune cells. These agents may be used as single agents, or as part of combination regimens.

#### TARGETING OUTSIDE OF THE CELL

Our antibody-drug conjugate technology combines the specificity of monoclonal antibodies, innovative linker systems, and the power of potent cell-killing agents to treat cancer.

In our ADCs, stable linkers attach a potent synthetic cell-killing (cytotoxic) agent to an antibody. The antibody is targeted against a specific tumor-associated receptor on cancer cell surfaces. Our linker

systems release the cytotoxic agent once inside the targeted cells. By targeting specific tumor-associated receptors on the surface of cancer cells, ADCs have the potential to spare non-targeted cells and reduce toxic side effects resulting in better outcomes for patients.

Our ADC technology is employed in our approved product, ADCETRIS, and three other programs in pivotal trials, as well as in several earlier-stage candidates.

#### TARGETING PATHWAYS INSIDE THE CELL

Certain signaling pathways in the cell are known to be involved in initiation and progression of cancer. For instance, the kinase signaling pathway has been shown to drive many aspects of cancer tumor biology including survival, motility and evasion of antitumor immune response. We are currently conducting a pivotal trial of an oral tyrosine kinase inhibitor, tucatinib, for patients with an aggressive type of breast cancer.

### EXTENDING OUR OPPORTUNITIES THROUGH ADC TECHNOLOGY COLLABORATIONS

Beyond the broad internal development of our ADCs, we have entered into collaborations with a number of biotechnology and pharmaceutical companies. These licensing agreements have generated more than \$400 million to date and have the potential to generate approximately \$2.5 billion in potential future milestones as well as royalties on net sales of any approved products. AbbVie, GlaxoSmith-Kline and Roche have agents from our collaborations currently in pivotal trials.

#### ACTIVATING IMMUNE CELLS

Immunogenic cell death induced by ADCs can result in the stimulation and recruitment of an immune response toward cancer. We believe these properties could make ADCs a preferred partner for immuno-oncology agents, such as checkpoint inhibitors. We are currently conducting several clinical trials combining ADCs with checkpoint inhibitors.

### CONTINUING TO ADVANCE OTHER APPROACHES

We are conducting phase 1 trials of several novel agents. For example, we have a phase 1 trial evaluating SEA-BCMA, an antibody empowered using our proprietary Sugar Engineered Antibody (SEA) technology designed to enhance antibody dependent cellular cytotoxicity. The target of SEA-BCMA, the cell surface protein B-cell maturation antigen (BCMA), is broadly expressed on malignant plasma cells in multiple myeloma. SEA-BCMA has demonstrated promising antitumor activity in preclinical studies.

# SEATTLE GENETICS HEOR FELLOWSHIP PROGRAM



ACCELERATE YOUR  
CAREER WITH OUR  
FELLOWSHIP PROGRAM.



Seattle Genetics and the University of Washington Comparative Health Outcomes, Policy and Economics (CHOICE) Institute now offer a 2-year health economics and outcomes research (HEOR) fellowship for post-PharmD students. Designed to help meet the growing need for expertise in HEOR and evaluation of pharmaceuticals and other health care technologies, the fellowship combines 1 year of academic study with 1 year of industry experience to provide both the theoretical tools and the practical experience to become a skilled researcher in this increasingly important field.

Fellows will receive a competitive stipend for each year of the fellowship, along with tuition, health benefits, and travel expenses for company meetings and attendance at 1 domestic professional meeting per year.

## FELLOWSHIP PROGRAM OBJECTIVES

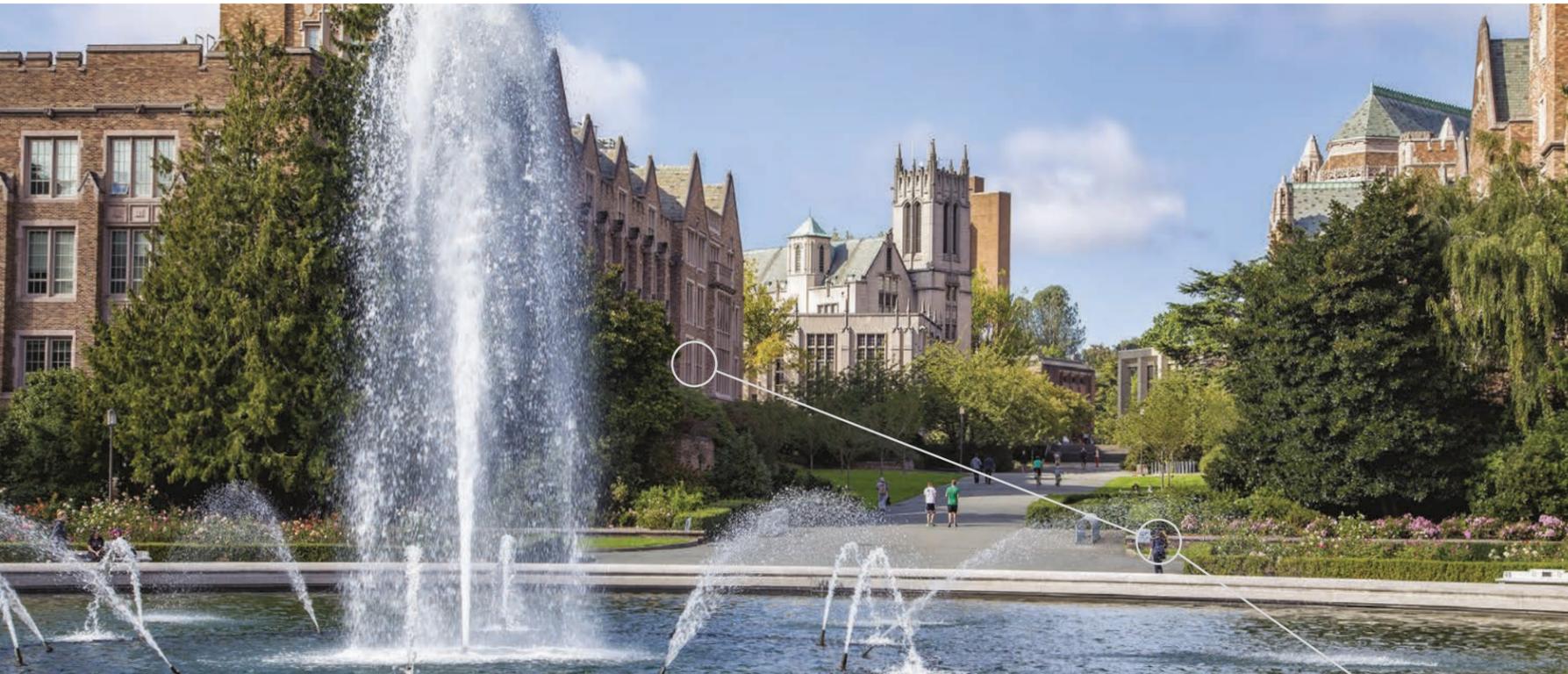
AFTER COMPLETION OF THE 2-YEAR PROGRAM, FELLOWS WILL HAVE A CLEAR UNDERSTANDING OF:

- General principles of economics and how economics influences the use, cost, and availability of pharmaceuticals.
- The complex structure of drug policy and how it determines relationships among consumers, health care providers, payers, and government agencies.
- The breadth, scope and limitations of analytical methods needed for assessing cost-effectiveness and health-related quality-of-life as influenced by the use of pharmaceuticals.
- Research design and epidemiology methodology, including development of research protocols in pharmaceutical-related outcomes assessment.
- Formulary development, maintenance and evaluation in institutional, managed care, and state-level government programs.

FELLOWS SHALL ALSO GAIN PRACTICAL EXPERIENCE IN:

- Designing an economic assessment protocol and conducting the research, as applied to either existing products or those in development.
- Applying the methods of epidemiology, statistics, and psychometrics as they relate to cost-effectiveness and health-related quality-of-life evaluations.
- Preparing proposals for funding research in an academic, government, or industry setting.
- Disseminating results of an economic assessment by preparation of a manuscript, seminar, or other scholarly vehicle as well as a US FDAMA 114/ Section 3037 approved health care economic information communication.
- Application of HEOR methods to inform pharmaceutical research strategies.

“AT SEATTLE GENETICS,  
PASSION FOR PATIENTS™  
IS THE CENTER OF EVERYTHING  
WE DO. IN DYNAMIC  
HEALTHCARE ECOSYSTEMS,  
ENSURING PATIENTS HAVE  
ACCESS TO OUR INNOVATION  
REQUIRES DEMONSTRATING  
AND DEFENDING VALUE.  
HEALTH ECONOMICS AND  
OUTCOMES RESEARCH ARE  
ESSENTIAL TO ACHIEVE  
THAT GOAL.”



## FELLOWSHIP PROGRAM 1ST YEAR

The first year of the fellowship is conducted at the University of Washington School of Pharmacy in Seattle. The objective of the first year is to learn the foundations of health economics and outcomes research, including an overview of pharmaceutical economics, general health policy, economic assessment methodologies, health services research design, and statistical analysis through an individualized program of coursework provided through the University of Washington in consultation with the program director.

Fellows will meet regularly with their advisor to discuss their progress and review assigned current research articles. In addition to their classwork, fellows will participate in a research

seminar designed to provide them with experience in critiquing, preparing, and presenting scholarly research during each quarter and will be expected to present a report on their independent research once during that year. The program is rigorous, requiring up to 45 hours a week in classwork and independent study.

Fellows will be required to develop, under the guidance of their advisors at the University of Washington and Seattle Genetics, a research project leading to a thesis. The fellow will choose the topic, with input from the University of Washington and Seattle Genetics and should be of mutual interest to all parties. If the selected topic involves a Seattle Genetics compound, the research protocol will

be submitted to Seattle Genetics for prior approval. Additional funding to complete this project may be made available at the discretion of Seattle Genetics. Research proposals shall be implemented while fellows are at the University of Washington but may continue into the second year of the program. Research will be managed by fellows under the supervision of University of Washington faculty and Seattle Genetics product researcher(s).

Due to the proximity of Seattle Genetics to the University of Washington, fellows can regularly interact with Seattle Genetics staff while focusing attention on their coursework. This provides unique early exposure to the Seattle Genetics team in advance of the second year industry placement.



THE SECOND YEAR PROVIDES FELLOWS EXPERIENCE IN APPLYING THE HEOR SKILLS GAINED DURING THEIR FIRST YEAR OF THE PROGRAM TO REAL-WORLD DEVELOPMENT AND COMMERCIALIZATION OF A PRODUCT WITHIN THE INDUSTRY SETTING.

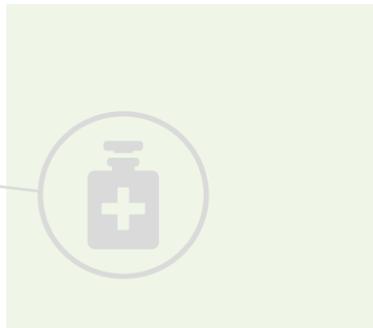
## 2ND YEAR

The second year provides fellows experience in applying the HEOR skills gained during their first year of the program to real-world development and commercialization of a product within the industry setting.

Starting the first week of July, 2020 and continuing through the end of June 2021, the fellow will work on site at Seattle Genetics as a member of the HEOR team. Fellows gain hands-on experience in conducting research with an oncology focus, approved by both Seattle Genetics and the University of Washington, to support the evidence generation plan of an existing or experimental product in a therapeutic area of interest to Seattle Genetics.

Unique to the Seattle Genetics Fellowship is its focus on oncology, and the opportunity to learn the real-world evidence and value strategy needed to support new oncology treatments. Fellows will learn how pharmacoeconomics and outcomes research are developed with consideration for value frameworks such as those produced by the American Society of Clinical Oncologists (ASCO), the National Comprehensive Cancer Network (NCCN), and the Institute for Comparative Effectiveness Research (ICER).

In addition to completing their individual research project(s), fellows will participate in ongoing pharmacoeconomic evaluations or other outcomes projects assigned by their Seattle Genetics preceptor. They will have the opportunity to interact with Seattle Genetics clinical research, commercial development, and regulatory affairs teams to learn how Seattle Genetics uses diverse datasets and HEOR methodologies to generate evidence needed to identify unmet need and demonstrate Seattle Genetics product value to payers, providers, and patients. Fellows will be expected to present the results of any individual research projects to the University of Washington faculty, graduate students, other post-doctoral fellows, and to cross-functional teams at Seattle Genetics. After completion of the program, fellows will have a solid understanding of HEOR methodologies as well as firsthand experience in applying their learnings in an industry setting, laying the foundation for a successful career in HEOR.



## UNIVERSITY OF WASHINGTON PROGRAM FACULTY

The HEOR fellowship program is directed by Josh Carlson, MPH, PhD.

Other core faculty involved in the fellowship program include:

- Anirban Basu, PhD
- Sean D. Sullivan, PhD
- David Veenstra, PharmD, PhD
- Beth Devine, PhD
- Ryan Hansen, PharmD, PhD
- Lou Garrison, PhD
- Aasthaa Bansal, PhD
- Douglas Barthold, PhD
- Zachary Marcum, PharmD, PhD
- Thomas Hazlet, PharmD, DrPH
- Scott Ramsey, MD, PhD

## APPLICATION CHECKLIST

CV

Letter of intent

Three Letters of recommendation

## APPLICATION PROCESS:

Please communicate your intention to apply to Dr. Josh Carlson and Ms. Shannon Dwyer at the UW CHOICE Institute. **Formal application must be made through the UW Graduate School.** The Graduate School can be reached through a series of links that begins here:

<https://sop.washington.edu/choice/graduate-education-training-programs/fellowships/>

**DEADLINE FOR APPLICATION SUBMISSION IS FRIDAY, DECEMBER 7, 2018**

## FOR MORE INFORMATION CONTACT:

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Ms Shannon Dwyer  
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CHOICE Graduate Program Administrator  
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Program Website:  
<https://sop.washington.edu/choice/>



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Associate Professor, The Comparative Health Outcomes, Policy, and Economics (CHOICE) Institute  
School of Pharmacy  
University of Washington  
Seattle Genetics/UW Fellowship Director



Zsolt Hepp, PharmD, MS  
Associate Director, HEOR  
Seattle Genetics



Cindy McDonald-Everett  
VP, Global Value, Access, and Pricing (GVAP)  
Seattle Genetics