Innovation in Pacific Northwest Healthcare

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~20% of all new FDA approved drugs originate in public sector research institutions

“The boundaries between the roles of the public and private sectors have shifted substantially since the dawn of the biotechnology era, and the public sector now has a much more direct role in the applied-research phase of drug discovery.”

- AJ. Stevens et al, New England Journal Of Medicine, 2011
A Pacific Northwest Network of Academic Institutions…

2017 BY THE NUMBERS

► $443M in NIH funds awarded
► $1B in research grants awarded
► 296 research centers
► 31 departments in clinical and basic science

► $123M in research funds awarded ($50M from NIH)
► 45 regional outreach sites and clinics
► 7 pediatric research centers

► $386M in research funds awarded (~$285M from NIH)
► 395 active clinical trials
► >300 programs and projects
Our Region Has a History of Health Innovation…

1960s
Portable heart defibrillator created at Providence and Swedish hospital with UW support

1970s
Bone marrow transplantation was pioneered by Dr. E. Donnall Thomas at Fred Hutch (who was later awarded the Nobel prize)

1980s
G-CSF identified and used to treat neutropenia, later marketed as “Neupogen” an important part of many cancer treatments

1990s
Enbrel, a drug for rheumatoid arthritis, developed by Immunex (a Fred Hutch spin-off company) generates >$5.5B in sales annually

2000s
Scores of new biotechnology start-ups make the Pacific Northwest a new biotechnology hub
Technology Transfer & Commercialization Acceleration

CoMotion® aided health related start-ups at UW
CAR T-Cell Therapy and Juno Therapeutics

Collaborative research to develop investigative T-cell therapies to use a patient’s immune system to fight cancer.

Juno Therapeutics launched in 2013, and later becomes a Celgene company worth $9B.
Regional Investment by the NIH: National Center for Advancing Translational Sciences (NCATS)

Mission: get more treatments to more patients more quickly

“The Clinical and Translational Science Award (CTSA) Program is designed to develop innovative solutions that will improve the efficiency, quality and impact of the process for turning observations in the laboratory, clinic, and community into interventions that improve the health of individuals and the public.”

Source: https://ncats.nih.gov
Institute of Translational Health Sciences

Accelerate science to the clinic:

- Fostering innovative research
- Cultivating research partnerships, public and private, and with communities
Resources
Translational Research Resources and Services

- Biomedical Informatics
- Biostatistics
- Data and Safety Monitoring
- Education and Training
- GMP Production Facility
- Research Navigation
- Preclinical Consulting
- Research Coordination
- Regional Collaboration
- Adult, Pediatric, Dental Translational Research Units
Gene and Cell Therapy Lab

Goal: Increased support of local cell therapy clinical trials by expanding cGMP manufacturing capacity and to expand that support to investigators within the WWAMI and CTSA network

EXAMPLE PROJECTS

► Creating stems cells for the treatment of damaged heart tissue in heart attack patients
► Generating autologous cell vaccines targeting glioblastoma for Phase I trial
► Point-of-Care process for CAR-T Cell therapy targeting ovarian cancer aims to reduce production time from 15-30 days to 3-4 days
Drug and Device Advisory Committee (DDAC)

Between 2008 and 2016, the DDAC supported 161 unique project teams, 28% of which went on to form a startup and over 50% of startups received external funding (including SBIR, STTR, VC, IPO, or other federal or foundation awards).

Example

- Developing an oral enzyme for the treatment of celiac disease
- Technology invented over 5 years at UW’s Institute for Protein Design
- Consulted with the ITHS DDAC

Sources:
(1) https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5890319/
Making an Impact
Drug Therapies for Neurodegenerative Disorders

- Researchers from Washington State University
- Consulted with ITHS’ Drug and Device Advisory Committee
- Supported by UW’s CoMotion Labs

Three clinical stage small molecules for the treatment of:
- Alzheimer’s
- Parkinson’s
- Multiple Sclerosis

Seattle biotech M3 raises $12M for clinical trial of Alzheimer’s treatment

The Seattle Times

Funding From Alzheimer’s Drug Discovery Foundation Advances M3 Biotechnology Toward Human Trials

Nasdaq
GlobeNewswire
Preserving Hearing During Treatment of Infections

- Aminoglycosides are commonly used to treat infections but can produce hearing loss
- Researchers at UW developed an animal model (zebrafish) for screening agents that could protect structures damaged by aminoglycosides
- A promising lead agent has been optimized and licensed

In 2018, FDA approved IND application, clearing way for first clinical trials.
Driving Innovation in Pacific Northwest Healthcare… and the World

Lab  Clinic  Community

www.ITHS.org