

AUDREY E. OLSHEFSKY

audreyo at uw dot edu

EDUCATION

University of Washington **Seattle, WA**
PhD Student, Department of Bioengineering Expected 2022

Massachusetts Institute of Technology **Cambridge, MA**
Bachelor of Science in Biological Engineering June 2016

Friday Harbor High School **Friday Harbor, WA**
Valedictorian June 2012

RESEARCH EXPERIENCE

University of Washington **Seattle, WA**
Graduate Research Assistant, Department of Bioengineering September 2017 – Present

- Co-advised by Dr. Suzie H. Pun and Dr. Neil P. King.
- Developing a platform for *in vivo* miniprotein library display on synthetic nucleocapsids.
- Modularly re-targeting synthetic nucleocapsids to tumors by displaying known cancer binders on the surface.

Juno Therapeutics **Seattle, WA**
Research Associate, Gene Engineering & Delivery, 1-year contract July 2016 – August 2017

- Designed and constructed chimeric antigen receptor (CAR) T cell plasmids for cancer therapeutic research.
- Optimized and performed an assay that analyzes RNA splicing in primary cells.
- Evaluated several protein tags to detect CARs via flow cytometry.

Massachusetts Institute of Technology **Cambridge, MA**
Undergraduate Researcher, Department of Biological Engineering January 2015 – 2016

- Under the mentorship of Dr. Natalie Kuldell, optimized a synthetic pathway in *E. coli* to produce high-contrast bacterial photographs (Olshefsky & Shehata et al., *PLoS ONE*, 2016).

Fred Hutchinson Cancer Research Center **Seattle, WA**
Undergraduate Intern June – August 2015

- Under the mentorship of Dr. Carissa Perez Olsen, designed a targeted RNA interference screen with *C. elegans* to map the genetic regulation of plasmalogenes.
- Identified two genes that could be involved in plasmalogen regulation and suggested additional genes to examine in future studies.

Parsons Laboratory for Environmental Science and Engineering **Cambridge, MA**
Undergraduate Researcher January 2013 – May 2015

- Under the mentorship of Dr. Sallie (Penny) Chisholm and Dr. Andres Cubillos-Ruiz at MIT, examined nitrogen assimilation from amino acids in *Prochlorococcus* and *Rhizobium* co-cultures and integrated the results with known metabolic pathways.
- Supported the ongoing development of a genetic system for *Prochlorococcus* by constructing plasmids and carrying out bacterial conjugation experiments.

University of Washington Friday Harbor Laboratories **Friday Harbor, WA**
Research Assistant June - August 2011

- Under the mentorship of the Dr. Kenneth Sebens Lab and Tim Dwyer, studied long-term marine community ecology in Nahant, MA and the San Juan Islands, WA.
- Tracked changes in distribution and abundance of sea urchins by underwater image analysis, comparing current images to images over the prior 3 decades.
- Studied predator impacts on underwater rock walls by analyzing scraped samples.
- Drove research watercraft and served as surface support for scientific diving operations.

PUBLICATIONS	<p>Olshefsky A, King NP (2021). Hallmarks of icosahedral virus capsids emerged during laboratory evolution of a bacterial enzyme. <i>Trends Biochem. Sci.</i> S0968-0004(21):00168-7.</p> <p>Lajoie MJ*, Boyken SE*, Salter AI*, Bruffey J, Rajan A, Langan RA, Olshefsky A, et al (2020). Designed protein logic to target cells with precise combinations of surface antigens. <i>Science</i>, 369(6511):1637-43.</p> <p>Gustafson HH, Olshefsky A, Sellers DL, Sylvestre M, Pun SH (2018). Current state of <i>in vivo</i> panning technologies: designing specificity and affinity into the future of drug targeting. <i>ADDR</i>, 130:39-49.</p> <p>Olshefsky A*, Shehata L*, Kuldell N (2016). Site-Directed Mutagenesis to Improve Sensitivity of a Synthetic Two-Component Signaling System. <i>PLoS ONE</i> 11(1): e0147494.</p> <p>*Co-first authors.</p>														
PRESENTATIONS	<p>Olshefsky A, et al. <i>In vivo</i> library selection of synthetic nucleocapsids with applications in cancer therapeutic delivery. Deep Mutational Scanning Symposium, Seattle, WA, 2020. (Poster)</p> <p>Olshefsky A, et al. Design and library selection of synthetic nucleocapsids for targeted therapeutic delivery. Biomedical Engineering Society Research Conference, Philadelphia, PA, 2019. (Poster)</p> <p>Olshefsky A, et al. Library selection of synthetic nucleocapsids to evolve <i>in vivo</i> targeting. RosettaCon, Leavenworth, WA, 2018. (Poster)</p> <p>Olshefsky A, Butterfield GL, Laojie MJ, Gustafson HH, Sellers DL, Roy A, Sylvestre M, Cherf GM, Cochran JR, Pun SH, Baker D, King NP. Self-assembling protein nanocages as a vehicle for targeted therapeutic delivery. Cystic Fibrosis Foundation Summer Conference, Jackson, WY, 2018. (Talk)</p> <p>Olshefsky A, Drechsler R, Chen SW, Perez Olsen C. Targeted RNA interference screen to map the genetic network of plasmalogens in <i>C. elegans</i>. Fred Hutch Summer Undergraduate Research Symposium, Seattle, WA, 2015. (Poster)</p>														
AWARDS & HONORS	<table border="0"> <tbody> <tr> <td>Best Technology, awarded by Deep Mutational Scanning Symposium</td> <td style="text-align: right;">2020</td> </tr> <tr> <td>Interdisciplinary Training in Cancer Research, NIH training grant</td> <td style="text-align: right;">2018-2020</td> </tr> <tr> <td>Inskeep Legacy Scholar, awarded by San Juan Island Community Foundation</td> <td style="text-align: right;">2012-2016</td> </tr> <tr> <td>Bishop-Fleet Foundation Scholar, awarded by Bishop-Fleet Foundation</td> <td style="text-align: right;">2012</td> </tr> <tr> <td>Valedictorian, Friday Harbor High School</td> <td style="text-align: right;">2011</td> </tr> <tr> <td>Young Investigator Prize, awarded by UW Friday Harbor Laboratories</td> <td style="text-align: right;">2010</td> </tr> <tr> <td>Global Leaders Scholar, awarded by AFS-USA for foreign exchange in Argentina</td> <td style="text-align: right;">2009</td> </tr> </tbody> </table>	Best Technology , awarded by Deep Mutational Scanning Symposium	2020	Interdisciplinary Training in Cancer Research , NIH training grant	2018-2020	Inskeep Legacy Scholar , awarded by San Juan Island Community Foundation	2012-2016	Bishop-Fleet Foundation Scholar , awarded by Bishop-Fleet Foundation	2012	Valedictorian , Friday Harbor High School	2011	Young Investigator Prize , awarded by UW Friday Harbor Laboratories	2010	Global Leaders Scholar , awarded by AFS-USA for foreign exchange in Argentina	2009
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LEADERSHIP & OUTREACH	<p>Pre-College Rosetta Internship Opportunity July 2020 – Present Founder and Mentor</p> <ul style="list-style-type: none"> • Program materials: https://kumu.io/awvater/pre-college-rosetta-internship-opportunity-workflow-and-resource-hub#wheel-map • Program website: https://www.ipd.uw.edu/high-school-research-internship/ <p>UW Making Connections September 2017 – Present <i>Academic and Career Mentor</i></p>														