Jeremy Bjelajac
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Education

SEATTLE UNIVERSITY, SEATTLE, WA **SEP 2014-JUN 2018**

- B.S. Cell and Molecular Biology, Chemistry minor, *Cum Laude*
  - President's List, GPA of >3.9 (5 quarters)
  - Dean's List, GPA of >3.5 (9 quarters)
  - Arrupe Scholarship

Professional Summary

I am a driven and qualified researcher with four years of diverse experience in a university and private laboratory setting, as well as proficiency in topics related to synthetic biology and cellular engineering. I have an extended background in a multitude of ubiquitous laboratory techniques and expansive experience with molecular cloning, flow cytometry, and primary tissue culture. I am extremely passionate about pursuing a PhD in Biomedical Sciences with a specialized interest in cellular engineering to combat solid tumor microenvironments.

Experience

RESEARCH SCIENTIST II, JENSEN LAB, SEATTLE CHILDRENS RESEARCH INSTITUTE **OCT 2019- PRESENT**
RESEARCH SCIENTIST I, JENSEN LAB, SEATTLE CHILDRENS RESEARCH INSTITUTE **JUN 2018- SEP 2019**

- Took part in leading a collaboration between the Jensen lab and the Center for Integrative Brain Research at Seattle Children's Research Institute in an attempt to understand intracellular protein signaling intrinsic to CAR T-cell activation
- Independently designed experiments to advance projects integral to the improvement of clinical cellular products, as well as regularly presented findings at lab meetings and seminars.
- Genetically engineered primary T-cells to express chimeric antigen receptors and other transgenes of interest using the Piggybac Transposon system, as well as CRISPR/Cas9 genome editing.

RESEARCH INTERN, DELANEY LAB, FRED HUTCHINSON CENTER **JAN 2018- JUN 2018**

- Executed experiments to investigate mechanisms influencing ex-vivo NK-cell development and functionality from cord-blood derived CD34+ cells
- Proficient in aseptic technique while maintaining and initiating primary cell cultures
- Regularly performed phenotyping assays with multi-color flow cytometry panels on cultured stem cells for analysis of intracellular cytokines and surface antigen receptors

MOLECULAR BIOLOGY RESEARCHER, HULTGREN LAB, SEATTLE UNIVERSITY **JUNE 2017-MAY 2018**

- Involved in a study aiming to elucidate the effects of genome size on the developmental features of different decapods, as well as understand species divergence through phylogenic analysis
- Proficient in DNA extraction of whole tissue and PCR amplification
- Successfully optimized a protocol to estimate genome sizes using Flow cytometry and Feulgen image analysis densitometry

BIOINFORMATICS RESEARCHER, RUTHERFORD LAB, SEATTLE UNIVERSITY **NOV 2017-MAY 2018**

- Worked both independently and within a group of computer science undergraduates to program a web-based pedagogical tool to be used in undergraduate biology courses
- Became adept at Python-based programming and UNIX software

INTERN LAB TECHNICIAN, MCELRATH LAB, FRED HUTCHINSON CENTER **JUNE 2016-SEP 2016**

- Regularly operated a Flow Cytometer LSR II for daily functions including CST standardization and plate analysis, as well as analyzed Flow Cytometer data via FlowJo software analysis
- Evaluated epitope mapping strategies with large pools of viral peptides in order to isolate antigen specific T-cells from patients in an HIV-1 clinical trial.

MECHANICAL ENGINEERING RESEARCHER, SHUMAN LAB, SEATTLE UNIVERSITY **DEC 2015-DEC 2017**

- Developed an experimental method to purify algae for the efficient production of biofuels
- Became self-taught in operating a FlowCam VS® to analyze particle density of algal cells, as well as routinely operated high-energy power supplies to successfully achieve algal separation

Skills

- **Laboratory Techniques:** Flow cytometry, intracellular cytokine staining, primary cell culture, RNA/DNA Isolation, RT-qPCR/ddPCR, plasmid design, primer design, Western blot, lentiviral production/transduction, CRISPR/Cas9 genome editing, Transposon-based genome editing, bacterial transformation, primary cell electroporation, cDNA library synthesis, siRNA design, in-vitro transcription, molecular cloning, chromium release assays, cytokine release assays, quantitative multiplex co-immunoprecipitation (QMI)
- **Bioinformatics:** Python Programming, UNIX software, BLAST(n,p,x,tx), R Studio, BioPython
- **Data Analysis:** FACSDIVA, Microsoft Excel, Prism, FlowJo®

Abstracts

Teodora Rutar Shuman, Anthony Rock, Ben Loveless, and **Jeremy Bjelajac**, "Continuous-flow method for pre-concentrating microalgae with flow rates up to 5 L/min and energy inputs as low as 0.05 kWh/m^3 of processed algal slurry", 2016 Algal Biomass Summit, Phoenix, AZ, October 25th, 2016.

Kristin Hultgren, **Jeremy Bjelajac** "The correlation demonstrated in crustacean egg size and genome size within decapoda and alpheus", 2017 Murdock Charitable Trust Conference, Spokane, WA, October 14-16, 2017.

Teodora Rutar Shuman, Ben Loveless, **Jeremy Bjelajac**, and Jason Zhou "Continuous-flow Electro-Coagulation-Flocculation for rapid and ultra-low energy pre-concentration of microalgae", *2017 Algal Biomass Summit*, Salt Lake City, UT, October 29 - November 1, 2017.

Robert Rutherford, **Jeremy Bjelajac**, Samuel Levy, Nic Garcia "Three web tools to aid genetics instruction developed by students in an undergraduate bioinformatics projects course", 2018 American Society of Biochemistry and Molecular Biology, San Diego, CA, April 21- 25, 2018

Jeremy Bjelajac, Ashley Wilson, Joshua Gustafson, James Matthaei, Michael Jensen, Stephen E.P. Smith. "Comparing signal transduction downstream of TCR vs. CAR engagement." Keystone Symposia on Molecular and Cellular Biology. March 22 - 26, 2020

Publications

C Summers, J Yokoyama, A Grier, K Gwiazda, **J Bjelajac**, A Johnson, R Koning, A Reid, M Baldwin, N Reekers, R Gardner, C Delaney, and MC Jensen. "Multiplexed Engineering of CD19 CAR T cells for Post-Transplant Consolidative Immunotherapy. Blood (2019). In progress.

J Bjelajac, A Mizukami, J Gustafson and MC Jensen. "Comparative analysis of T-cell activation using different commercial reagents for adoptive immunotherapy." (2019). In progress.

Patents

Gustafson, J, Cheng, J, Gwiazda, K, Wilson, R, **Bjelajac, J,** Jensen, MC**.** Self-Inactivating Transposase Plasmids. U.S. Patent Application 62/724236, filed August 2019. Patent Pending.

Bjelajac, J, Gustafson, J, Cheng, J, Gwiazda, K, Wilson, R, Jensen, MC**.** Self-Inactivating Sleeping Beauty Transposase Systems. U.S. Patent Application. U.S. Patent Application XX/XXXXXX, filed June 2020. Patent Pending.

Bjelajac, J, Fitzgerald, M, Gwiazda, K, Jensen, MC**.** A Self-Regulated CRISPR Delivery Platform. U.S. Patent Application. U.S. Patent Application XX/XXXXXX, filed June 2020. Patent Pending.

Bjelajac, J, Gustafson, J, Gwiazda, K, Jensen, MC. A GMP-compatible method to produce and expand pure populations of primary mammalian cells for clinical use that employs targeted genomic editing techniques to make specific gene edits, using a fully non-viral methodology. U.S. Patent Application XX/XXXXXX, filed June 2020. Patent Pending.

Fitzgerald, M, **Bjelajac, J,** Jensen, MC. A section tool for enriching engineered T cells harboring two different genetic modifications with a single drug. U.S. Patent Application XX/XXXXXX, filed June 2020. Patent Pending.

Invited Talks

Bjelajac, J. and Hultgren, K. (2018, May). "The correlation demonstrated between egg size and genome size within Decapod crustaceans". Presented at Seattle University Undergraduate Research Association in June, 2018.

Bjelajac, J. and Jensen, MC. (2019, November). "Advancements in Cellular Therapies Using Non-Viral Gene Delivery Systems". Presented at The Immunotherapy Integration Hub Seminar at Seattle Children's Research Institute.

Bjelajac, J. and Jensen, MC. (2019, January). "Utilizing Self Inactivating Transposase Plasmids to Effectively Create Sophisticated Cellular Products". Presenting at The Program in Immunology Meeting at Fred Hutchinson Cancer Research Center.

References

Joshua Gustafson, PhD | Seattle Children's Research Institute | Manager, Process and Analytical Development | Joshua.gustafson@seattlechildrens.edu

Kristin Hultgren, PhD | Seattle University | Associate Professor | khultgren@seattleu.edu

Michael C. Jensen, MD | Seattle Children's Research Institute | Director, Ben Towne Cancer Research Center | Michael.jensen@seattlechildrens.edu