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Department A

Jon Snow, Ph.D.
Tormund Giantsbane
Postdoctoral Fellow

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Department of Bioengineering
R1 University Y
Address 1
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Location USA 00000

October 13, 2017

Dear Search Committee,

I am writing to apply to the tenure-track position of Assistant Professor in the Department of Bioengineering at the R1 University Y (RUY). I am currently a Tormund Giantsbane Postdoctoral Fellow in the lab of Dr. Robert Baratheon at the R1 University Z (RUZ). Previously, I earned my Ph.D. with Dr. Jaime Lannister at the R1 University X.

My research vision is to understand how cells perceive signals that vary in ABC, BCD, CDE, and how this perception regulates process A. My lab will leverage my experience pioneering technique A – technique explanation here – to uncover how the cell decodes information within complex and combinatorial signals. We will apply this approach to quantitatively understand cellular decisions in cell type A, cell type B, and model type A. Since we will study fundamental principles regulating all cellular function, the insights gained will have broad biomedical impact and application. I believe my lab would fit well in the vibrant research environment in the department and at RUY, and the tools and insights we mutually develop would foster numerous productive collaborations.

My training has laid the foundation for these goals. I earned my doctorate at R1 University X under Dr. Jaime Lannister, where I developed the first technique A allowing inducible protein clustering. I engineered this tool to regulate protein A signaling (Snow et al, *Nature Methods*, 2014) as well as other signaling pathways (Snow et al, *Nature Communications*, 2016), and I further used these methods to show that differential protein A timing can specify fates in cell type C. On the basis of this work, I received an internal training grant award, was named a runner up in the nationwide Prestigious Prize competition, and Dr. Lannister received an NIH R01 award. In total, my graduate work resulted in six publications with one in preparation for submission.

For postdoctoral training, I joined the lab of Dr. Robert Baratheon at RUZ to obtain training in DEF, EFG, and FGH. In collaboration with Dr. Viserys Targaryen, I used technique A protein B activation to show that FGH signaling networks can cause cells to “misperceive” their environment and respond in a manner potentially contributing to disease. Specifically, I showed that FGH mutations and select drugs can impair the cell’s ability to properly filter dynamic protein B

signals, resulting in hyperproliferation. This work may establish a new disease paradigm in FGH, and a first-author manuscript is currently in submission for review. I also developed new quantitative technique A, including 1) scalable high-throughput technique A devices for experiments (patent pending), as well as 2) multi-pathway control using orthogonal technique A systems. The above work was the basis for public (grant here) and private (Tormund Giantsbane Postdoctoral Fellowship) funding.

I believe my lab would contribute to and draw strength from the diverse research environment in the Bioengineering department and at RUY, and I would be excited to form collaborations with several groups throughout the University.

I thank you for your consideration of my application, and please contact me if I can provide any further information. I have attached my CV, research statement, and 3 references. I will also be presenting my work at the Upcoming National Conference (Talk: UNC – date – time, room. Poster: date, #0000). I appreciate being considered for this position, and I look forward to hearing from you.

Best Regards,

Jon Snow, Ph.D.

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Jon Snow, Ph.D.

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EDUCATION

Ph.D. in Lab of Dr. Jaime Lannister, R1 University X & RUZ Graduate Group in Bioengineering 2009-2015
R1 University X
R1 University Z
Dissertation: Dissertation Title Here

Master of Science in Engineering, Biomedical Engineering 2008-2009
R1 University V

Bachelor of Science, Biomedical Engineering 2004-2008
R1 University V
Mechanical engineering concentration
Mathematics minor

MAJOR RESEARCH EXPERIENCE

Postdoctoral Fellow, R1 University Z (PI: Robert Baratheon, PhD) 2015-
- Uncovered defects in Protein B/C signal processing/filtering within FGH (collaboration with Dr. Viserys Targaryen).
- Mapped Protein B/D and E/F interactions using technique A
- Developed devices for high-throughput technique A
- *Awarded funding from Tormund Giantsbane Foundation and Public Grant Here. Manuscript in submission for review.*

Graduate Student, R1 University X (PI: Jaime Lannister, PhD) 2010-2015
- Developed protein type A for the intracellular protein control
- Engineered modular control over several cell signaling pathways
- Probed cell type A differentiation in response to dynamic protein A signal presentation
- *Resulted in 6 publications, 2 first author (Nature Methods, Nature Communications), and one more in preparation. Awarded funding from NIH and Bronn Foundation. Work was basis for NIH R01 award.*

PUBLICATIONS

Published

name, **Snow J,** Baratheon R. (2017) Title here. ***Curr Opin Struct Biol***.

Snow J, name, name, name, Lannister J. (2016) Title here. ***Nature Communicatons***.

name, name, name, **Snow J** , name, Lannister J. (2015). ***Stem Cells.***

name, name, name, name, **Snow J**, name, name, name, Lannister J. (2015). Title here. ***Oncotarget***.

Snow J, name, name, name, Lannister J. (2014). Title here. ***Nature Methods***.
**Additional recommendation*

name, name, name, **Snow J,** Lannister J, name. (2014). Title here. ***Chem Commun***.

Snow J and Lannister J. (2014). Title here. ***Curr Opin Chem Biol***.

name, name, name, name, name, **Snow J**, name, name, name, name, name. (2013) Title here. ***Eur J Appl Physiol***.

name, name, **Snow J**, name, name, name, name, name, name, name, name, name, name, name. (2011). Title here. ***Eur J Appl Physiol***.

name, **Snow J**, name, name, name, name, name, name, name, name, name, name, name. (2010). Title here. ***J Appl Physiol***.

name, name, name, name, name, name, **Snow J,** name, name, name, name, name, name. (2007). Title here. ***Proceed Nat Acad Sci USA***.

Submitted
Snow J, name, name, name, name, Targaryen V, Baratheon R. Title here. *Currently in submission.*

PATENT APPLICATION

Snow J, Baratheon R. Title here. U.S. Provisional Patent Application No. 00000000

FUNDING

Current
Tormund Giantsbane Postdoctoral Fellowship 2017
Role: PI, Amount: $XXX,XXX

Contributions to ongoing funded research
NIH/NINDS R01 NS 000000-00 2015-2020
Title: Title here
PI: Jaime Lannister, PhD, and Arya Stark, PhD
Amount: $ X,XXX,XXX
Role: Developed foundational technology and contributed data

Previous or declined
Jorah Mormont Award (declined) 2017
Role: PI, Amount: $XXX,XXX

Bronn Graduate Scholarship 2014
Role: PI, Amount: $XX,XXX

Catelyn Stark Training Grant Awardee, R1 University X 2012
Role: Trainee, Amount: $XX,XXX

HONORS AND AWARDS

Tormund Giantsbane Postdoctoral Fellowship	2017
Prestigious Prize, Runner-up ($XXk award),	2014
1st place Poster, 2014 Robb Stark Conference	2014
Bronn Scholar, Class of 2014, *awarded annually to 85 top students/leaders from leading graduate schools*	2013
Outstanding Graduate Student Instructor, R1 University X	2013
Dean's List (all semesters), R1 University V	2004-2008
Greek Student Athlete of the Year, R1 University V	2008
Alpha Eta Mu Beta Daenerys Targaryen Honors Society, R1 University V	2007
Tau Beta Pi Engineering Honors Society, R1 University V	2007
Khal Drogo Fellow, awarded $XXXX to research abroad in Essos, R1 University V	2007
Sansa Stark Research Fellowship, R1 University V	2006
Ygritte Scholar, R1 University V	2005
Missandei Math and Science Scholarship	2004
National Merit Scholar	2004

SELECTED PRESENTATIONS

Oral Presentation

Seminar at Varys, Inc. (*Invited*) Location USA, 2017
Title here

RUZ FGH Center Seminar (*Invited)* Location USA, 2016
Title here

R1 University X Cell type A Center Retreat Location USA, 2015
Title here

Gilly Research Seminar: Topic here Location, 2015
Title here

Daenerys Targaryen Society Annual Meeting Location USA, 2014
Title here

Poster Presentation

Gilly Research Conference: Topic here Location, 2015
Title here

International Society for Cell type A Research Annual Meeting. Location USA, 2014
Title here
**Selected for Poster Brief presentation*

First Annual Gendry Biology Workshop. Location USA, 2014
Title here

First Annual Winter Robb Stark Meeting Location USA, 2014
Title here
**Awarded 1st place in poster competition*

Soc. for Daenerys Targaryen: Topic here Location USA, 2014
Title here
**Selected for Poster Brief presentation*

Brienne of Tarth Annual Meeting Location USA, 2013
Title here
**Selected to be featured in the 2013 BOT press book (declined)*

TEACHING

Graduate Student Instructor, R1 University X 2012
Course: Title here
Responsibilities: Prepared and taught weekly 1-hour lectures for sections of 30 junior-level undergraduates. Held weekly office hours. Graded quizzes, assignments, and course exams.
**2012-2013 Outstanding Graduate Student Instructor Award*

Graduate Teaching Assistant, R1 University V 2008, 2009
Course: Title here
Responsibilities: Prepared, supervised, and assisted juniors in weekly 3-hour lab course

Grader, R1 University V 2009
Course: Title here
Responsibilities: Graded weekly assignments, quizzes, and exams for junior-level course

Instructor, Melisandre, Inc. 2009-2010
Course: EXAM preparation
Responsibilities: Prepared and taught weekly 3-hour test prep class.

Instructor, K-12 Teaching Program 2009
Responsibilities: Developed, presented hour-long lesson on cardiovascular system to 4th grade students

STUDENTS MENTORED

- Ms. Talisa Maegyr, Lannister Lab rotation student, R1 University X 2015
- Ms. Ellaria Sand, Visiting Scholar from Univ. A, Location, R1 University X 2014
- Ms. Samwell Tarly, Lannister Lab undergraduate researcher, R1 University X 2013-2014
- Mr. Stannis Baratheon, Lannister Lab undergraduate researcher, R1 University X 2012-2014
- Mr. Theon Greyjoy, Lannister Lab undergraduate researcher, R1 University X 2012-2013
- Ms. Cersei Lannister, Lannister Lab visiting scholar, R1 University X Summer 2011
- Mr. Bran Stark, Baelish Lab rotation student, R1 University X Fall 2010
- Ms. Myrcella Baratheon, Bolton Lab undergraduate researcher, RUV Spring 2007

LEADERSHIP EXPERIENCE

Multiple Roles, Daenerys Association of Students, R1 University X 2009-2013
President: Represented students in department exec meetings. Ran student orientation. Organized elections
Admissions Committee: Reviewed PhD student applications and participated in selection meeting (2 years)

Graduate Assistant, R1 University X Margaery Tyrell Scholars Program 2010-2011
Responsibilities: Mentored 15 Margaery Tyrell Scholar undergraduates during summer research experience. Held weekly meetings to discuss research. Planned and taught workshops on scientific writing, presenting, and graduate school. Edited abstracts, posters, and presentations. Organized weekend social activities.

Founder and coordinator, Sports Team Recruiting Dept, R1 University V 2007-2009
Responsibilities: Created and maintained database of all prospective RUV applicants and sports players. Maintained contact with recruits. Coordinated recruit visits to campus

Co-Captain, Men's Varsity Sports Team, R1 University V (2 years) 2006-2008
Responsibilities: Organized and led winter practices, managed team conflict and morale, represented team at events and to university

Sports Player, Men's Varsity Sports Team, R1 University V (4 years) 2004-2008
Responsibilities: 2-season competition (fall/spring), with indoor training during winter. 5 AM practices 6 days/week. Weekly travel to represent university at weekly intercollegiate regattas.

PROFESSIONAL ASSOCIATIONS

- Daenerys Targaryen Society
- Brienne of Tarth Society
- International Society for Cell Type A Research

REFERENCES

Robert Baratheon
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Teaching Statement

"It is the supreme art of the teacher to awaken joy in creative expression and knowledge. " – *Albert Einstein*

Teaching Philosophy My most effective teachers successfully instilled in me the passion they brought to their subject. As most learning will happen outside the classroom, I believe my primary goal as a teacher is to inspire my students for self-study. I will do this through thoughtful preparation of course content and its engaging delivery, as well as by striving to connect abstract concepts to tangible applications and demonstrations. I believe it is paramount to maintain a positive yet challenging classroom environment to foster student confidence and to encourage active participation. I look forward to developing an effective teaching style following these guidelines and to honing the craft over time.

Teaching Experience I have had several teaching experiences that have shown me the challenges and gratification of becoming a skilled instructor. As a graduate student at R1 University X, I was a Graduate Student Instructor (GSI) for the Course Name Here. I prepared and taught weekly 1-hour sections to review course material, and I graded quizzes and exams. In my section lectures, I routinely devoted time for class discussion about details in the material that I found fascinating. For example, on one occasion I led my class in reflection of the elegant filtration scheme of a renal nephron, how the nephron shape and osmotic gradients were tightly coordinated to properly retain certain molecules and discard waste. I could see the students genuinely engage in these conversations, and I found this experience highly rewarding. At the end of this semester, I was recognized as a R1 University X Outstanding GSI.

Before graduate school, I taught two sessions of an EXAM prep course for Melisandre, Inc. This Melisandre, Inc provided me training on how to become an engaging instructor. Importantly, it also taught me how to balance maintaining a positive classroom environment while maintaining academic rigor (not "sugarcoating" wrong answers). In addition, I gained experience teaching students from diverse backgrounds pursuing diverse goals.

As an undergraduate, I was a Teaching Assistant for two biomedical engineering lab classes, and I was a grader for the Course Name Here. As a grader, I learned how a well-written exam will test a student's ability to synthesize the principles learned in the class, rather than their ability to recite information. I am committed to synthesizing these past experiences to become outstanding instructor.

Coursework My training as a biomedical engineer has provided me a strong foundation in biology, mathematics, and engineering, and I am thus prepared to teach all core undergraduate courses in these disciplines. I also envision teaching and developing electives based on my research background and on the needs and wants of the department and students. These could include courses on cell signaling, synthetic biology, systems biology, protein engineering, quantitative and computational methods in biology, and cellular engineering. As these are rapidly evolving topics, these courses will be combinations of lectures and reviews of classic and recent literature. In these courses, I will guide students through projects and assignments that expose them to important skills in conducting modern science. These include literacy in programming, multi - dimensional data analysis, statistical methods, conducting literature reviews, and scientific proposal writing.

Mentoring I have mentored 8 undergraduates and graduate students in the lab, and I have served as a Graduate Assistant mentor for 15 undergraduates over two years of the Margaery Tyrell summer research program at RUX. Through these experiences and through observing my own mentors, I have found that the most effective mentoring style is different for each individual. As in teaching a course, an effective mentor will find ways to motivate and encourage his mentees, but he must also ensure that mistakes are acknowledged and learned from. Thus, I will ensure regular communication and feedback with each mentee, and I will use this to continuously reflect and recalibrate mentorship strategies with each individual. I will also hold annual review meetings with each trainee to discuss overall scientific and personal progress, updated life and career goals, and the best road forward to achieve those goals.

Scientifically, I will ensure that my mentees have access to diverse conceptual and technical training in order to best prepare them for future careers. My lab will have a unifying theme of understanding the cell

signaling logic controlling cell decisions, providing experimental and intellectual cohesion and allowing lab members to collaborate and learn from each other. Within this larger context, my students will develop aspects of their projects according to their interests and goals (e.g. basic or applied, theoretical or experimental, diverse model systems). This will foster my students' internal drive and satisfaction, and it will allow me to provide a range of training opportunities to best fit each individual. To maintain my trainees' awareness of science beyond their projects, I will 1) encourage collaborations with colleagues, 2) host "supergroup" lab meetings to share our mutual ideas with neighboring labs and to identify potential synergies, 3) encourage my students to routinely present and receive feedback on their work. I will also encourage career exploratory activities including summer internships to provide broad exposure to career paths of interest. I believe this overall strategy will best prepare my lab members to pursue their future careers.