

Biosketch

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What is a biographical sketch?

A biographical sketch (biosketch) is a shortened version of your curriculum vitae. It is known more commonly as one of the critical components of any National Institutes of Health (NIH) fellowship application. However, internships, job applications, and other STEM applications alike all require a similarly streamlined description of your academic background, past and current research interests, and research projects.

Things to address in your biosketch:

- Why are you well suited for the project? Provide a quick summary of relevant experience.
- Address career goals and motivations.
- How will this project advance your career goals?

Additional resources:

Better at the Bench (shorturl.at/fhDQS)

Bernard Becker for more NIH F31 biosketch examples (shorturl.at/knpEP)

Here, we provide an example of a biosketch, taken from an application for the Ruth L. Kirschstein Predoctoral Individual National Research Service Award:

A. Personal Statement

I first became interested in human health and disease in high school when I was awarded an NIH Diversity Supplement to work as a research technician for two summers in Dr. Indira Creative's lab at the University of Hawaii. I continued to pursue this interest as an undergraduate at Purdue University, where I conducted research with Dr. Daniel Richardson on the mechanisms of action of a new class of small molecules for cancer treatment. This resulted in a co-authorship publication, as well as an invitation to present a poster at the annual Oncological meeting in Denver, Colorado. By the end of my undergraduate career, I knew that I wanted to pursue a long-term career in research. For my graduate training at UC San Diego, I have moved into the fields of genetics and biochemistry by studying the signaling and motility mechanisms of cancer cells, under the mentorship of Dr. Nani Green. Dr. Green is an internationally recognized leader in the field of cancer genetics and has an extensive record for training predoctoral and postdoctoral fellows. Along with giving me new conceptual and technical training, the proposed training plan outlines a comprehensive set of career development activities and workshops. I will have opportunities to engage in public speaking, conduct literature analysis, consider biomedical ethics, and learn about varied career options. For my initial project, I am currently developing a novel protocol for the identification of transcription complexes involved in cancer signaling pathways, which I hope to submit as a first author publication in the next few months. As a native Hawaiian, I am the first in my family to graduate from college, and I am excited to continue making great strides with my education. Overall, I believe that my current research setting in conjunction with my proposed training plan will provide a solid foundation for my long-term goal to become an academic researcher.

Everyone's STEM journey is nonlinear. Be sure to start off your personal statement describing the first time you did research, even if the field is outside the scope of the project you are proposing.

After every research experience and before elaborating on the next, be sure to recap with a result. Self-reflection piece - whether that is a manuscript, poster presentation, something you learned about yourself regarding changing STEM interests. This is also helpful to keep your story moving - every sentence in the story should have your story moving forward.

Be explicit explaining why the training environment you are in now is the ideal place to conduct the project you are proposing - i.e. your advisor is a leader in the field and/or other PIs you are collaborating with are experts in xyz.

Many STEM fellowships and job applications do not just seek driven scientists, but those who strive to better themselves as speakers, presenters, team members/collaborators, etc. List several significant professional development opportunities you are actively pursuing in the training environment you are in!

If you identify as someone from an underrepresented background, you have gone through hurdles getting to where you are now, surpassing many significant milestones. Reflect on your journey - acknowledge all these struggles and achievements!

1. Nieman PY, Simmons-Gonzales L, Richardson, D. Gen Y: a novel small molecule with cytotoxic abilities targeting colon cancer cells. *Cellular and Molecular Biology*. 2018 June. 7(20):13672-78.

Each contribution should also be as concise as possible: you can elaborate more on the personal development aspect of each project in the background training goals: focus on identifying what you did, and how this contributed to your field.

C. Contributions to Science

2. **High School Research:** I spent two summers doing research in the laboratory of Dr. Indira Creative at University of Hawaii, funded by a NIH Diversity Supplement award. Dr. Creative has developed several new anti-fungal drugs that might protect against skin infections. Over the course of two summers I set up *in vitro* cultures of skin cell lines and conducted a wide range of toxicity assays. We were excited to find that one of the new agents showed almost no toxicity, even at fairly high doses. Dr. Creative is now testing the drug in animals exposed to different types of fungal infections, including *Candida albicans*.

List up to five here! They don't have to be every experience you've had, and they don't have to be split into a single experience. For instance, if you studied the same topic in two different experiences, you can lump those together into a single "contribution".

1. Footman B, Eisser JK, Simmons-Gonzales, L, Creative IM. Testing XXH for toxicity in vitro. University of Hawaii Research Symposium; 2012 May; Manoa, HI.

Briefly elaborate your past research experiences in such that they highlight the skills and knowledge that will be useful for the research you are proposing.

3. **Undergraduate Research:** I was part of a project in the laboratory of Dr. Daniel Richardson at Purdue University. Dr. Richardson's laboratory studies the mechanisms of action of small molecules for cancer treatment. During my time in his lab I was looking at how a new small molecule, Gen Y, is able to target cancerous cells. My contributions to this work were included in a publication recently accepted in *Cellular and Molecular Biology*. The work was particularly exciting because it looks like the mechanism of action of Gen Y might be completely novel, making it a potential candidate for treating patients afflicted with colon cancer. Dr. Richardson was recently awarded a patent for this new drug.

This can take the form of publications or presentations. As a note, you don't have to include all of your publications, just the ones that are most relevant.

1. Nieman PY, Simmons-Gonzales L, Richardson, D. Gen Y: a novel small molecule with cytotoxic abilities targeting colon cancer cells. *Cellular and Molecular Biology*. 2018 June. 7(20):13672-78.

It is also OK not to have publications if you do, that's awesome! It is important to keep in mind that the primary goal of many biosketch documents – either for your CV, resume, fellowship application, grad school app, etc. – is to get a sense of your persistence in science and the evolution/growth of your STEM interests.

2. Simmons-Gonzales, L, Richardson, D. Testing the ability of a small molecule, Gen Y, to target colon cancer cells. *Advances in Cancer Research and Therapy*; 2019 September; Denver, CO.

Be sure to comment on the high level significance of the project like the author does here. This highlights a "contribution".

4. **Graduate Research:** My ongoing predoctoral research is focused on transcriptional gene regulation and signaling impacting motility of cancer cells. I believe the results from my research will likely be highly relevant to human health as they will provide new details into the workings of complex biological systems, which will allow for further extrapolations into the development of several types of cancer and their progression. I am currently developing a novel protocol for the identification of transcription complexes involved in cancer signaling pathways, which I hope to submit as a first author publication in the next few months.

The author sets up context for the experience here.

Sets up context for contribution here.

Identifies the overarching question of the project.

Any additional "contribution" that may add value

1. Simmons-Gonzales, L, Green, N. A tandem identification approach for transcriptional complexes involved in the signaling and motility of cancerous cells. *Genetics and Molecular Biology Virtual Meeting*; 2020 September.