

Using My FAER Grant to Prepare Me for the Leap to Federal Funding

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As physicians, we all go through many transitions during our professional growth, each one with increasing responsibilities. For early stage physician-scientists who directly provide patient care while pursuing research, critical professional transitions in both clinical and research realms occur simultaneously, making these transitions uniquely challenging and rewarding.

My FAER Mentored Research Training Grant (MRTG) started January 1, 2017. Needless to say, it started off with excitement and joy. However, I quickly realized that two years is not a lot of time and could go by before I noticed it. My mentor on the FAER grant, Dr. Jianren Mao, and I planned my career transition from the very beginning of the FAER award period. Essentially, we had two major decisions, one about the research itself, the other about leveraging the FAER experience to become independent.

My research topic during the FAER period was gut microbiota, which represents a consortium of microbes residing in the gastrointestinal tract. The role of gut microbiota in the immune system had been established very firmly but its role in pain had been barely examined at the time. We investigated its role in the development of neuropathic pain, using chemo-

therapy-induced peripheral neuropathy as our model system. Through a combination of metagenomics, animal behavioral study and bone marrow chimera system, we found a previously unknown role of gut microbiota in the development of chemotherapy-induced pain. However, we felt that the research topic at the FAER stage should not only be about a focused research topic, or a specific technical set up, although those were of vital importance. It should be more about a research theme that could be synthesized and incorporated into future research.

‘It takes a whole village to raise a child.’ Besides the impeccable mentorship and continuous support from Dr. Jianren Mao, I have been extremely lucky to have a wealth of colleagues and friends many of whom were FAER and/or NIH K series awardees at various stages of their careers. They also gave me incredible support and suggestions that I can still latch on to these days.



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As such, we approached the FAER training grant as a platform to establish a research theme, which would be customized and tailored for transition and as a foundation for next steps. More specifically, we decided that gut microbiota per se was not our ultimate research goal. Instead, it was a tool to probe neuro-immune interactions. In this context, gut microbiota could be perturbed to identify novel mediators that influence neurological endpoints that match our clinical and research interests. This strategy allowed a wide spectrum of intrinsically coherent research threads to be aligned, enabling me to explore many opportunities.

I had two choices after my FAER grant: to apply for an NIH K series award (Career Development) or an R series (Research) grant. The advantage of a K series award is primarily its protected research time, and its compatibility with an R series grant during the last two years. Additionally, it could serve as a buffer zone to prepare recipients for independence. However, an R series grant would establish one as an independent investigator, which accelerates career advancement. I did not apply for the NIH K series award and instead applied directly for the R series grant. As the NIH operates by grant cycles and each cycle is a lengthy process, I applied for several R series grants during and immediately after the period of my FAER grant. Not that I was hallucinating to get all of them funded. Rather, I wanted to have the leading experts in the field read and criticize them, to provide the most objective critiques which could empower me to improve my research and grantsmanship. These grants were based on the research theme that was developed during my FAER grant with different endpoints.

Specifically, I applied for an NIGMS R35 award to examine gut microbiota and postoperative cognitive dysfunction and an RO1 research project to examine gut microbiota and volatile anesthetic mechanisms, using neuro-immune interaction as the research themes. The R35 was awarded and the RO1 was ranked in the twelfth percentile but without funding due to the funding agency's policy of not allowing concurrent R35 and RO1 awards. The research theme developed during my FAER grant was a solid foundation for me to obtain independent funding, and more importantly, allow me to receive invaluable critiques and feedback during the application process. The second year into the R35 award, the NINDS awarded me with an R61/R33 grant to develop and validate a clinically relevant animal pain model, which was inspired by tissue-specific neuro-immune interactions.

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FAER Grant Information Spring 2020 Grant Cycle



FAER is proud to announce the awardees from our Spring 2020 Grant Cycle!

See the full list on our website at:

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[https://www.asahq.org/faer/
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FAER's Fall 2020 Grant Cycle
are due **August 15, 2020!**

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