



LIBR

Laureate Institute for Brain Research



THE UNIVERSITY *of*
TULSA

K Club, Week 5

Dr. Jenny Stewart, Ph.D.

Assistant Professor of Community Medicine,
University of Tulsa

Associate Director for Training and Mentoring,
Laureate Institute for Brain Research (LIBR)

Today's Topics



- ▶ Candidate Information and Goals for Career Development
- ▶ Candidate Background
- ▶ Career Goals and Objectives
- ▶ Action Items

K Application Sections

Research

- **Specific Aims** (1 page)
- **Research Strategy** (6 pages: **Significance, Innovation, Approach**)
- **Training in Responsible Conduct of Research** (1 page)
- **Project Summary / Abstract** (30 lines of text)
- **Project Narrative** (3 sentences)
- **Protection of Human Subjects from Research Risk**
- **Inclusion of Women and Minorities**
- **Inclusion of Individuals Across the Lifespan**
- **Inclusion Enrollment Report**
- **Budget + Budget Justification**
- **Bibliography + References Cited**

Career

- **Candidate Information and Goals for Career Development** (6 pages: **Candidate Background, Career Goals/Objectives, Career Development/Training Plan**)
- **Plans and Statements of Mentor and Co-Mentors** (6 pages)
- **NIH Biosketches** for you, Mentor, Co-Mentors (max 5 pages each)
- **Three Letters of Reference**
- **Letters of Support from Collaborators, Contributors and Consultants** (6 pages max)
- **Cover Letter**

Setting

- **Facilities and Other Resources**
- **Equipment**
- **Environment and Institutional Commitment to Candidate**
- **Resource Sharing Plan**



This Grant-Writing Process

- ▶ You are responsible for your own success
- ▶ There are a lot of documents you need to put together for this grant
- ▶ You, not your Mentors, will need to keep track of them
- ▶ Send reminders to people if you need things from them



Candidate Information and Goals for Career Development (6 pages total)



Candidate Background

Where did you come from and
where do you want to go?



Career Goals and Objectives

Address new knowledge you will gain;
Address what skills in communication, leadership,
lab management, grant-writing, research, and
productivity you will learn



Career Development / Training Plan

Give details on what specific activities you will do
and when to achieve your goals above;
Present a timeline for goal completion

A
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S **pecific:** goals stating exactly what you aim to accomplish (who / what / where / when / why), e.g. *I will defend my PhD thesis in 2021*

M **asurable:** goals in which progress can be objectively measured or evaluated on the daily basis, e.g. *every three months, I will discuss the progress with my promotor and ask for feedback*

A **chievable:** goals which are realistic, e.g. *with the knowledge obtained on my PhD topic within the last two years, I believe I can create a PhD thesis and defend in front of the committee*

R **elelevant:** goals which fit the long term objectives, e.g. *I aim to pursue a career in academia, therefore I need to obtain a PhD title as a professional qualification*

T **ime-bound:** goals which have clear checkpoints, e.g. *every six months, I will complete one chapter of the thesis, and I will submit my thesis to the committee in December 2020*

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Setting Short- and Long-Term Goals



Candidate Background

Candidate Background

- ▶ SECTION 1: PAST
 - ▶ Describe past research interests and experience
 - ▶ If there are consistent themes or issues that have guided previous work, then make these clear
 - ▶ Alternatively, if your work has changed direction, indicate the reasons for the change
- ▶ SECTION 2: PRESENT and FUTURE
 - ▶ Describe your potential to develop into a successful, independent investigator
 - ▶ Explain your strengths and skills and what new skills you are committed to learn
 - ▶ How does this grant let you to use the skills you have already learned (clearly say what these skills are) AND help you develop new skills (clearly say what these skills are) to enhance your research career?



Example: Candidate Background

- ▶ Let's say I'm writing a K99/R00
 - ▶ K99: Secondary fMRI data analysis on stress tasks in chronic cannabis use disorder
 - ▶ R00: New EEG data collection/analysis on stress tasks in young adult cannabis users



Paragraphs 1-2: My PAST

▶ Paragraph 1 Theme: Using EEG to understand Clinical Psychology

- ▶ **Overview:** Training in EEG to understand various types of psychopathology (bipolar disorder, depression, anxiety, schizophrenia) and emotional processing
- ▶ **Undergraduate Education:** BS in Psychology at UC San Diego, Honors project on P50 suppression in bipolar disorder and schizophrenia with Brett Clementz (learned EEG, statistics, Matlab, clinical interviews)
- ▶ **Post-Baccalaureate Experience:** Chief RA at the Scripps Research Institute, trained and supervised other RAs on EEG P300 studies with John Polich
- ▶ **Graduate School:** MA/PhD in Clinical Psychology from University of Illinois, minor in Neuroscience; EEG alpha band and P300 studies about anger, depression, anxiety with Greg Miller, Wendy Heller; also taught Abnormal Psychology, programmed in Fortran, Matlab
- ▶ **First Post-Doctoral Position:** EEG alpha band studies in depression with John Allen at University of Arizona; wrote papers, programmed in Matlab, supervised RAs

Paragraphs 1-2: My PAST

- ▶ **Paragraph 2 Theme: fMRI to Understand Emotion and Addiction (mostly Stimulants)**
 - ▶ **Graduate School:** ran fMRI participants at University of Illinois, learned Unix and analyzed fMRI data in FSL; participated in weekly Neuroscience seminars and took fMRI/EEG classes (Greg and Wendy again)
 - ▶ **2nd Post-Doctoral Position:** learned to run the fMRI scanner for multiple studies, supervised RA clinical/research training/recruitment, learned AFNI, taught other post-docs AFNI/paper-writing, worked with Martin Paulus at UC San Diego
 - ▶ **IMPORTANT TO ADDRESS Why the switch to addiction?** Career opportunity after 1st post-doc \$ ended, addiction often comorbid with depression/anxiety disorders and presenting with emotional problems so I saw these illnesses as connected

▶ Paragraph 3: My PRESENT and FUTURE

- ▶ **Strengths:** Responsible, detail-oriented, organized, motivated to work through challenges
- ▶ **Skills I have helpful for K99/R00:** EEG/fMRI data collection/analysis, programming, paper-writing
- ▶ **New skills I want to develop for an EEG addiction project (R00):**
 - ▶ I have experience collecting/analyzing other people's studies, but this grant will be the first time I have designed and implemented a study based on my own research ideas
 - ▶ Drafting IRB proposal
 - ▶ Setting up my own clinical EEG lab from scratch and developing training protocols
 - ▶ Pilot testing new paradigms
 - ▶ Learning new software for complex data processing/analysis: Brain Vision Analyzer and R Studio
 - ▶ Learning EEG time-frequency analysis, source localization, and linear mixed models



▶ Paragraph 4: My PRESENT and FUTURE

▶ How does this grant let you to use the skills you have already learned (clearly say what these skills are) and help you develop new skills (clearly say what these skills are) to enhance your research career?

▶ Already learned skills:

- ▶ EEG/fMRI principles, collection, analysis
- ▶ Brain mechanisms involved in addiction
- ▶ Programming, paper-writing

▶ New Research, Communication, Leadership, Lab Management, Grant-Writing Skills:

- ▶ Becoming Assistant Professor, Setting up my own lab and training staff
- ▶ Designing my own study
- ▶ Focusing on young adult development of cannabis use disorder
- ▶ Learning new statistics and innovative EEG analysis techniques
- ▶ Obtaining pilot data for future R-level grant (R01)
- ▶ Submitting R01 grant application





Career Goals and Objectives

Career Goals and Objectives



Justify why you need more Mentoring

Justify how you will separate scientifically from your Mentor

Career Goals and Objectives (~3 paragraphs)

- ▶ Paragraph 1:
 - ▶ Describe your short-term (K99 phase, R00 phase) research AND career goals
 - ▶ Explain how these short-term goals logically follow from your past research/training experience
 - ▶ Describe your long-term research AND career goals, and explain how the short-term goals will help you achieve them



Career Goals and Objectives

- ▶ Paragraph 2:
 - ▶ You need to JUSTIFY that you NEED more mentorship (K99 phase) to become an independent investigator
 - ▶ Explain what kind of mentorship you need to meet goals in Paragraph 1
 - ▶ State that you have already received training or you WILL participate in these COURSES:
 - ▶ Research methods, ethics, statistics
 - ▶ Any other classes related to research interest (e.g., developmental, clinical, abnormal psychology) or methods (e.g., advanced statistics, AFNI Bootcamp, programming courses, etc.)



Career Goals and Objectives

- ▶ Paragraph 3:
 - ▶ Describe how you plan to separate scientifically from your Primary Mentor and advance to research independence



Example: Career Goals and Objectives

Paragraph 1

▶ **Short-Term Goals**

- ▶ K99 research: Develop new knowledge (e.g., neuroimaging literature on cannabis and stress)
- ▶ K99 training: Build communication and time-management skills, obtain Asst. Professor Position
- ▶ R00 research: Set up lab, plan and carry out novel EEG stress study in cannabis users to develop new knowledge and research skills, obtain R01 pilot data, and submit R01 application
- ▶ R00 training: Build lab management/leadership skills, and enhance grant-writing skills

▶ **Explain how these short-term goals logically follow from your past research/training experience**

- ▶ Build on my EEG/fMRI skills and clinical psychology background to gain insight into cannabis-stress brain responses across the lifespan

▶ **Describe your long-term research AND career goals, and explain how the short-term goals will help you achieve them**

- ▶ Long-term research: Understanding markers of cannabis addiction will enable me to develop novel brain-based screening tools and interventions within an addiction clinic setting
- ▶ Long-term career: R00 study completion, teaching/grant/lab experience will set me on my way to eventually be a Full Professor with R01 funding, training next generation of neuroscientists

Example: Career Goals and Objectives

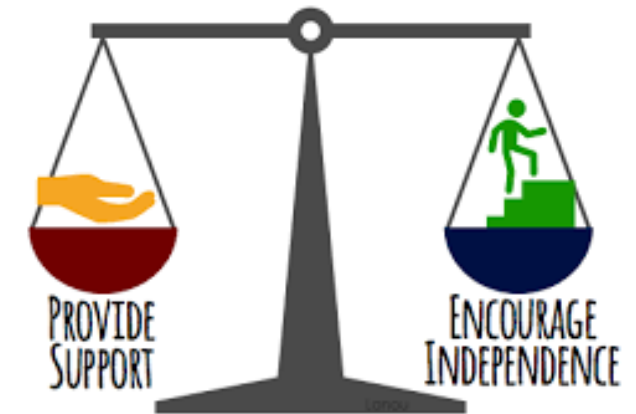
Paragraph 2

- ▶ **You need to JUSTIFY that you NEED more mentorship (K99 phase) to become an independent investigator**
 - ▶ Martin Paulus (Primary Mentor, good at getting grants) is an expert on stimulant addiction in fMRI, but I want to focus my career on cannabis addiction across the lifespan using EEG
 - ▶ Susan Tapert, Co-Mentor = cannabis in adolescence, good at getting grants, clinical training coordinator
 - ▶ Sally Sue, Co-Mentor = stress and aging, EEG expert
- ▶ **Explain what kind of mentorship you need to meet goals in Paragraph 1**
 - ▶ Knowledge of cannabis use/addiction across the lifespan
 - ▶ Understanding important issues involved in adolescence and aging research
 - ▶ Basic EEG lab setup and advanced EEG analytics techniques
 - ▶ Communication, time management, and leadership skills
- ▶ **Classes I have taken or will take during the award period**
 - ▶ I have already completed research methods/study design and basic statistics classes
 - ▶ Will take: Ethics, advanced statistics, psychology of aging, and developmental psychology classes
 - ▶ Will take: NIH R01 grant writing seminar, how to be effective teacher seminar, addiction seminar, diversity and cultural competence workshops

Example: Career Goals and Objectives

Paragraph 3

- ▶ Describe how you plan to separate scientifically from your Primary Mentor and advance to research independence
 - ▶ My Primary Mentor's research focus is fMRI and stimulant addiction
 - ▶ My research focus will transition to EEG and cannabis addiction development across the lifespan, focusing on interactions between amount of drug use and stress
 - ▶ Having a Mentorship Team with expertise of my two Co-mentors (adolescence, stress and aging) will help develop independence separate from Primary Mentor



- I know it's a lot to figure out!
- Remember that it is just a first draft of these sections!
- Treat yourself! Take breaks!
- The style you present the info can vary as long as you include all of the necessary CONTENT!



Action Items

- ▶ Revise your **Approach** section based on **Primary Mentor** feedback
- ▶ Write drafts of your **Candidate Background and Career Goals and Objectives** and get feedback from your **Primary Mentor**

