

# **How to build your research profile: Lessons in Publishing and Funding**

## **Part 2: How to write grants and hopefully, get them funded!**

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# **Funding– 2014**

## **R01 Research Project Grant**

**NHLBI: 16.8% funded (3077 submitted)**

**NIDDK: 21.4% funded (2240 submitted)**

**From NIH RePORT**

# Individual Training grants—NRSA 2014

## **F30 MD/PhD Pre-doctoral NRSA**

NHLBI	68 applications	32.4% funded
NIDDK	45	48.9%

## **F31 Ph.D. Pre-doctoral NRSA**

NHLBI	48	35.4%
NIDDK	51	29.4%

## **F32 Post-doctoral NRSA**

NHLBI	201	29.9%
NIDDK	186	39.3%

# CAREER DEVELOPMENT AWARDS --2014

	Grants reviewed	Success rate
<b>K22,23:</b>		
NHLBI	12,77	8.3, 37.7%
NIDDK	64	32.8%
<b>K08:</b>		
NHLBI	78	39.3%
NIDDK	55	47.2%
<b>K99:</b>		
NHLBI	167	24%
NIDDK	48	21%

Data from NIH RePORT

# How to write grants -- Where do I begin?

1. **Make novel observation based on hypothesis**
2. Further develop novel hypothesis
3. Write preliminary specific aims page
4. Get mentors, peers, senior investigators to review specific aims page and preliminary data
5. Write Research Strategy: Significance, Innovation, Approach
6. Repeat step 4 until grant is ready for submission

## My advice:

### 1. Make novel observation based on hypothesis

9 mos to 1 year prior to submission

Discuss with mentors, colleagues, read literature

Is this really novel?

Do I have the expertise to address questions?

--Need collaborators, consultants?

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## My advice:

- 2. Further develop novel hypothesis**  
6-9 mos prior to submission

Obtain as much preliminary data as possible

For “new” investigator, make sure you have preliminary data for all questions—shows feasibility



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## **My advice:**

- 3. Write preliminary specific aims page—  
6-9 months prior to submission**

**Most important part of the grant !!**

**First:**

**Develop diagram to explain hypothesis**

**Figure 1: Possible mechanisms for hypertension in PMHAF:**

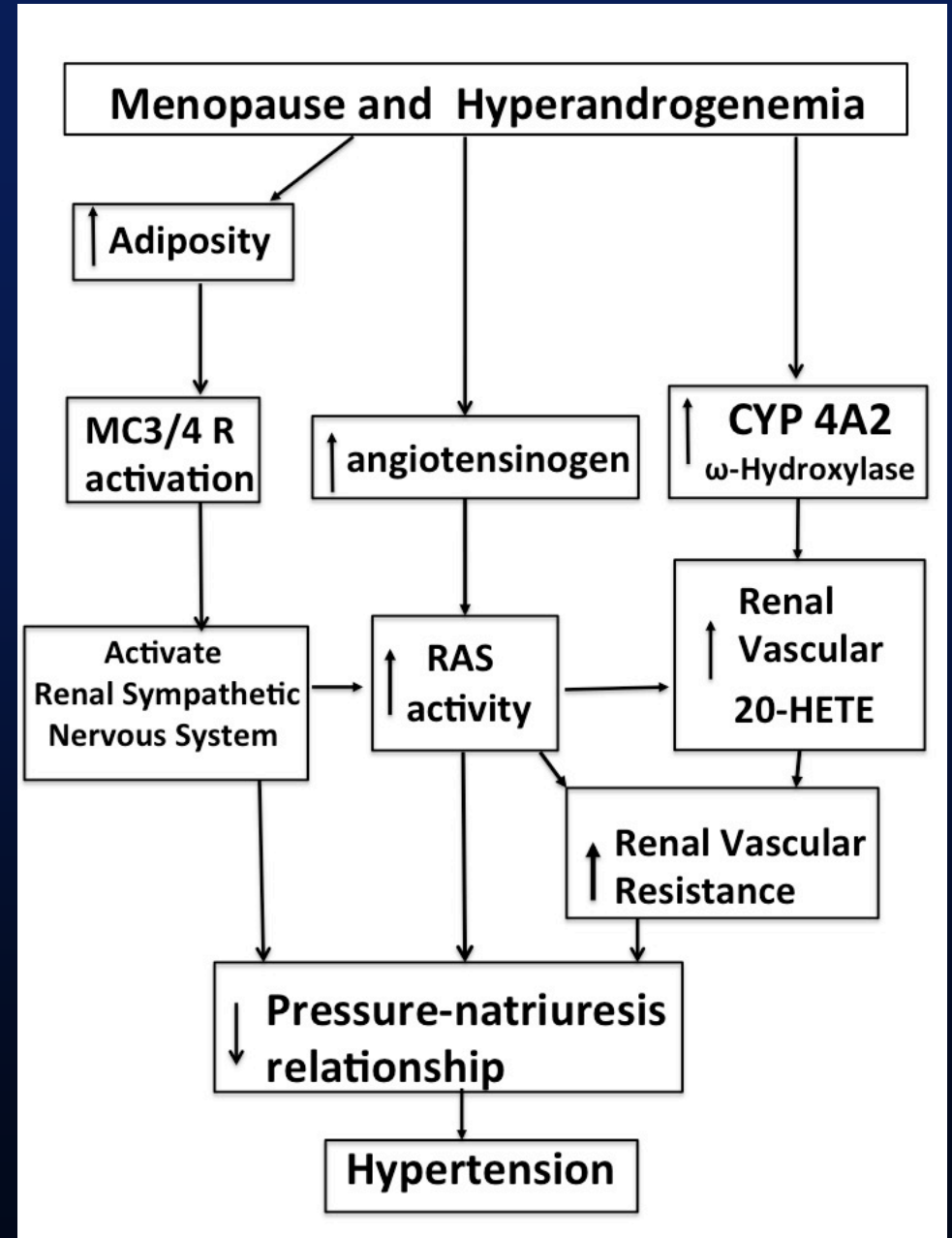
## Example of Hypothesis diagram

Clearly defines problem and questions in your own mind

Should be

--as specific as possible

--as complete as possible



## My advice:

### 3. Write preliminary specific aims page

First paragraph: Clinical importance—  
prevalence of disease, knowledge  
lacking?

# My advice:

## 3. Write preliminary specific aims page

Next 1-2 paragraphs:

Discuss preliminary data

# My advice:

## 3. Write preliminary specific aims page

Second last paragraph:

State hypothesis: “As shown in Fig. 1 and based on our exciting preliminary data, the hypothesis will be tested that  
....”

*Italicize hypothesis – don’t bold it – “buzz words”*

DON’T use words like: “to determine if”, “to evaluate”,  
“to measure”

(last paragraph before aims)

“We will test these integrative hypotheses, using a combination of our unique ??? model (novel transgenic animals) and state-of-the art techniques in the following specific aims:”

Use appropriate “Buzz words”

Aim 1: To test the hypothesis that ....

Aim 2: To test the hypothesis that ....

## 4. Get mentors, peers, senior investigators to review specific aims page and preliminary data

6 mos prior to submission (minimum)

Choose grant writing mentor team:

Senior investigators who are funded, have recently served on study section of granting agency

-- will provide constructive criticism,

-- make specific comments to improve specific aims page

Show preliminary data and questions that will be addressed for each aim— make sure you have enough preliminary data

Rewrite Aims page based on criticisms, re-review with team -- may take a few iterations to be it perfect



## My advice:

### 5. Write Research Strategy: Significance, Innovation, Approach

Significance: can be used for modest amounts of background,

--save preliminary data for Research Design Section

Final: “data obtained will provide new paradigm for future translational research, therapeutic options”

## My advice:

### **5. Write Research Strategy: Significance, Innovation, Approach**

Innovation:

Can be bullet pointed:

“1. Novel hypothesis will be tested...”

“2. Novel model, novel animals used” – explain

“ 3. Novel techniques” Or “state of the art techniques...”

# My advice:

## 5. Write Research Strategy: Significance, Innovation, Approach

### Approach:

Preliminary data

Restate specific aim exactly as on Specific Aims page

### Rationale:

Preliminary data specific to that aim

Questions to be addressed, protocols

“Expected results, alternative experiments, and limitations”

“Significance and Innovation of studies”

“Future studies”

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2. Further develop novel hypothesis, preliminary data
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## Letter with submission:

Request Institute (NHLBI, NIDDK, other) if NIH

Contact program officer for their interest in your proposal – make sure you get the right Institute

Request Study Section Panel – listed on NIH website

Contact Scientific Review Officer – right Study section?

Potential NIH study sections -- lots of others

Hypertension and Microcirculation –

Pathobiology of kidney disease –

Molecular Biology of Kidney Disease –

## **My advice:**

**Look at grant writing not as a chore,  
use the time to solidify your ideas**

**Think about writing a review raising  
relevant questions**

**GOOD LUCK !!**