

Strategies and Career Resources for Postdocs

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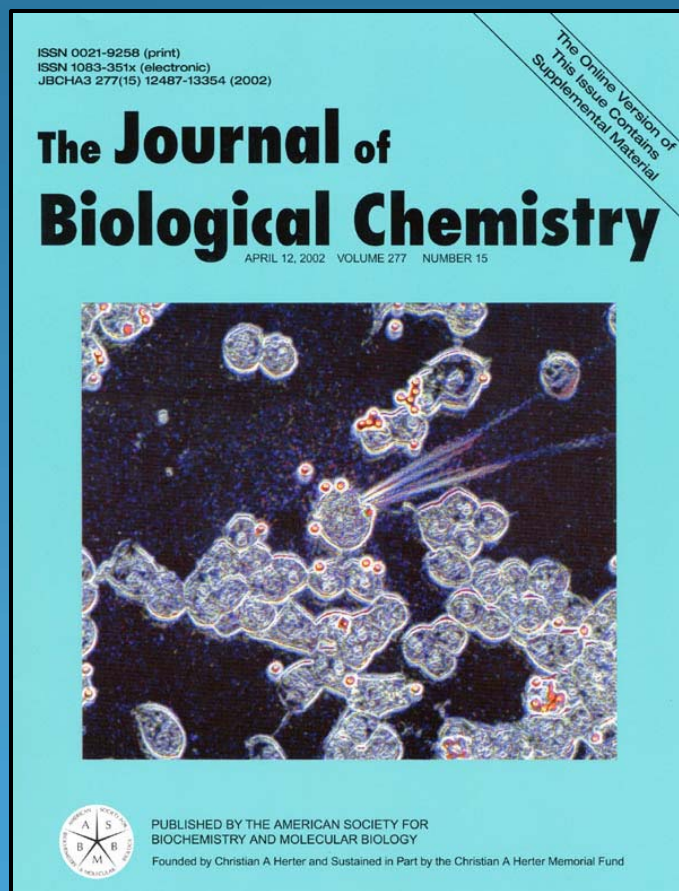
Strategies for a Successful Postdoctoral Traineeship

1. Publication
2. Oral Communication
3. Getting Funded

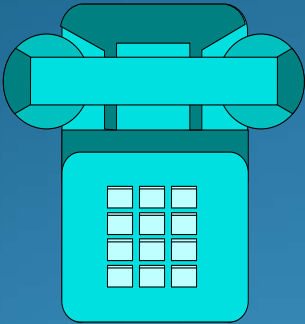
Strategies for a Successful Postdoctoral Traineeship

1. Publication
2. Oral Communication
3. Getting Funded

Publication without losing sight of the joy of discovery



The Idea



Read the literature AND talk to your colleagues



The image shows a screenshot of a web browser displaying a PubMed search results page for the term "Kv1.3". The browser's address bar shows the URL "www.ncbi.nlm.nih.gov/pubmed?term=Kv1.3". The PubMed interface includes a search bar with "Kv1.3" entered, a "Search" button, and various navigation options like "RSS", "Save search", and "Advanced". The search results are displayed in a list format, with the first result being "Analysis by flow cytometry of calcium influx kinetics in peripheral lymphocytes of patients with...". The page also features sections for "PMC Images search for Kv1.3", "Titles with your search terms", and "153 free full-text articles in PubMed Central".

NCBI Resources How To Sign in to NCBI

PubMed.gov US National Library of Medicine National Institutes of Health

PubMed Search

RSS Save search Advanced Help

Show additional filters

Display Settings: Summary, 20 per page, Sorted by Recently Added Send to: Filters: Manage Filters

Article types
Clinical Trial
Review
more ...

Text availability
Abstract available
Free full text available
Full text available

See 87 articles about KCNA3 (KV1.3) gene function
See also: KCNA3 (KV1.3) potassium voltage-gated channel, shaker-related subfamily, member 3 in the Gene database
kv1.3 in Homo sapiens | Mus musculus | Xenopus laevis | All 3 Gene records

Results: 1 to 20 of 699

Analysis by flow cytometry of calcium influx kinetics in peripheral lymphocytes of patients with...

PMC Images search for Kv1.3

See more (593)...

Titles with your search terms

The Lymphocyte Potassium Channels Kv1.3 and KCa3.1 as Targets for Imm [Drug Dev Res. 2011]
The antibody targeting the E314 peptide of human Kv1.3 pore region serve [PLoS One. 2012]
Kv1.3 deletion biases T cells toward an immunoregulatory phenotype a [J Immunol. 2012]
See more...

153 free full-text articles in PubMed Central

Structural basis of the selective block of Kv1.2 by maurotoxin from computer sim [PLoS One. 2012]
Granzyme B-induced neurotoxicity is mediated via activation of PAR-1 receptor [PLoS One. 2012]
KCa3.1 and TRPM7 channels at the uropod regulate migration of activated I [PLoS One. 2012]
See all (153)...

Find related data

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Discovery Favors the Prepared Mind



226 American Scientist, Volume 92



- SCHLAGZEILEN
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- NEWSLETTER
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"Neuron" (Bd. 41, S. 389 - 404). Den Nagern fehlt das Protein mit der Bezeichnung Kv1.3, das bei der Übertragung der Informationen von der Nase zum Gehirn eine wichtige Rolle spielt.

Antennen Supernasen

Je mehr, wie Gentechniker Mäusen erkennen mussten. Die Nagern ein Protein - und Supernasen.

erdünnte
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sity of
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itschrift



Maus mit Käse: Ohne Kv1.3-Protein duftet der Happen noch besser

SUCHEN:

Erde | Mensch & Technik | 06. Februar 2004

Exklusiv

"Opportunity":
Mars-Wasser bot Raum für Leben

➤ **Falscher Asteroiden-Alarm:**
"Rufen wir den Präsidenten an?"

➤ **Forschungsbetrug:**
Daten-Trickser behält Professorentitel

➤ **Krebsvorsorge:**
"Wir brauchen einen McCancer"

➤ **Umstrittene Tests:**
US-Mediziner befürworten Menschenversuche mit Giften

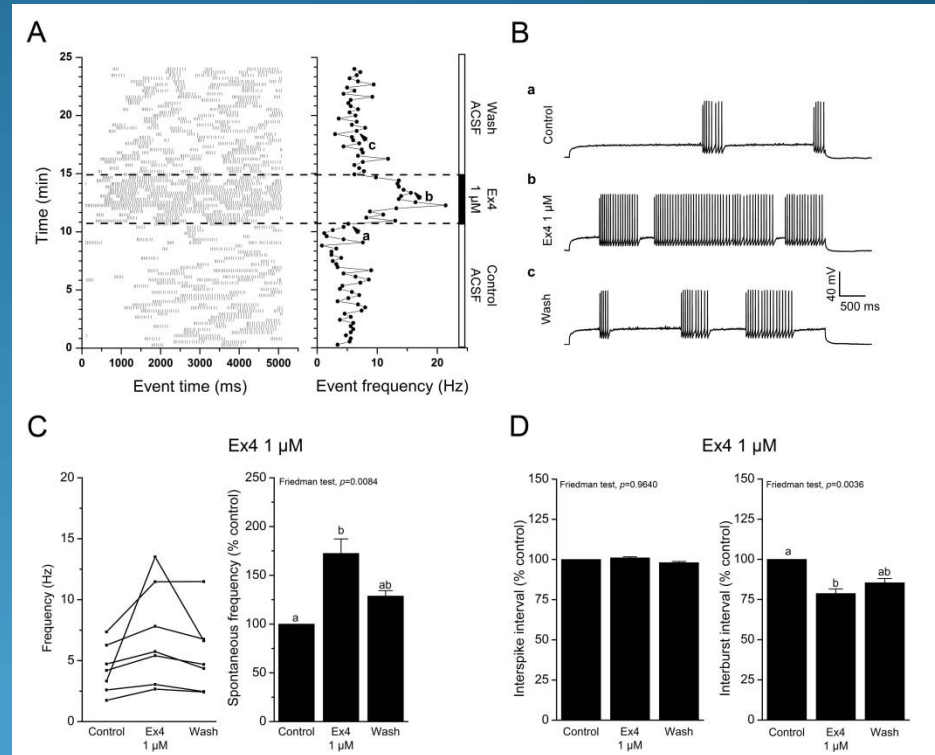
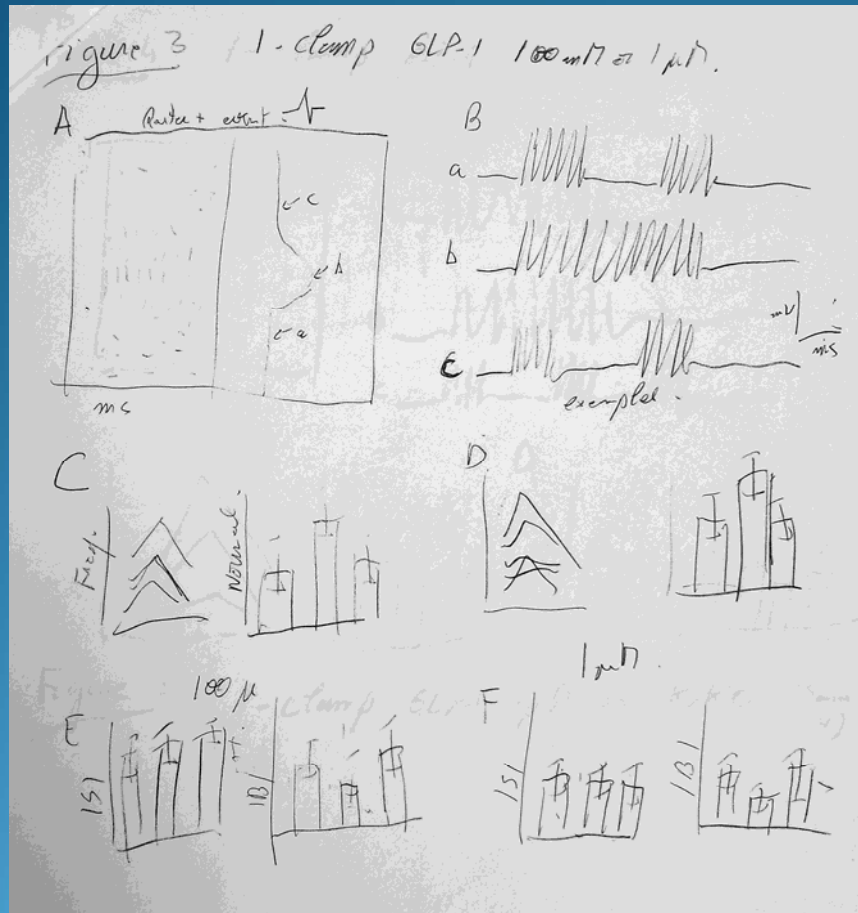
What are the logistics of publication for a postdoc?

1. Need first author publication on 2 or more papers. After the second year of your postdoctoral fellowship, you need periodic consistency.
2. You need a foundation of quality publication in your own field that will support feasibility for a fundable project.
3. Careful, planned experiments drawn together for a full-length manuscript (cohesive story).
4. Need to have multiple pots on the stove.

Creating an Integrated Research Plan

“DREAM PAPER” vs. “Set of fragmentary observations”

1. Think graphically (pencil then software)
2. Sketch out an encompassing hypothesis
3. Generate questions as you analyze your results
4. Additional clarifying experiments
5. Figures >> Methods >> Introduction >> Results >> Discussion >> **Abstract >> Title >> Cover Letter**
6. First authors write the first draft
7. First authors send to colleagues and revise



An internal review will increase strength of the external review

DraftExample.pdf - Adobe Acrobat Pro

File Edit View Window Help

Create

1 / 1 198%

Tools Comment Share

~~Therefore we anticipated that~~ We therefore asked whether mitral cells contained in slices prepared from Kv1.3-null mice would be unresponsive to insulin-induced spike frequency changes. We first screened wild-type mice with a more highly selectively blocker of Kv1.3 that binds the vestibule of the channel at pM affinity. Under current-clamp mode, application of X pM-ShK186 (X pM) significantly increased the firing frequency of mitral cell neurons by rapidly eliminating the pausing between spike clusters (Supplemental Figure 3A). ~~to exhibit a~~ The firing pattern of firing ~~not unlike~~ observed in the presence of ShK186 was similar to that of mitral cells obtained from Kv1.3-null mice (see Supplemental Figure 4). ~~Under~~ In voltage-clamp mode recordings, application of X pM-ShK186 (X pM) blocked 70% of the outward current in mitral cells that were additionally pretreated with X nM TTX (X nM) to block contaminating contributions from voltage-gated sodium channels (Supplemental Figure 3B). Subsequent application of insulin elicited a reduction in peak current amplitude of only X pA, representing only X percent of the total current (data not shown). Since bath application of insulin to cells not pretreated with toxin causes a reduction in peak current amplitude of X pA, or X percent of the control current, only a minor amount of unidentified current is modulated by insulin that is not contributed by Kv1.3 (Supplemental Figure 3C). ~~In fact~~ Consistent with these observations, the firing behavior of mitral cells in slices that were prepared from Kv1.3-null mice and recorded in current-clamp mode ~~were~~ was largely insensitive to bath the application of insulin (Figure 2D,E). Recordings from slices obtained from Kv1.3-null mice have not yet been reported for the slice configuration. Here we show that, in comparison to with wild-type mice, mitral cells with a gene-targeted deletion of Kv1.3 have an increased sensitivity to applied current step respond to lower current injections (lower threshold to first spike), display a more depolarized resting membrane potential, an increased firing frequency and a concomitant decreased ISI, a decreased time to latency for to the first spike, and a decreased pause duration between spike clusters (Supplemental Figure 4). Basal biophysical values are compared across genotypes in Supplemental Table 2.

Comment [PP12]: It's mostly a style issue, but I have the feeling that this way of arguing (expect, anticipate, etc...) takes away a bit of the novelty of the result...

Comment [PP13]: This is not so evident from Suppl. Fig. 3a, because the current injections were too short to appreciate the spike clusters. Instead, the increase in firing frequency is very clear. Could you include a different trace (longer current injection) to illustrate the effect on the spike clusters?

Comment [PP14]: I find this a bit confusing. Please tell me if I got it right. In Suppl. Fig. 3b you added TTX+ShK and say a reduction in outward current by 70%. You SUBSEQUENTLY added insulin: this for me means that you added insulin to the cells treated with TTX+ShK. Insulin has only a small effects on cells treated with ShK: this fits nicely in the story, but Suppl. Fig. 3c seems to show something different, with insulin being applied first to control cells (mid panel) and ShK strongly reducing the leftover current after insulin application... This seems to go against the claim that most of the insulin-sensitive current is also ShK sensitive, and can therefore be ascribed to the activation of Kv1.3 channels... Maybe simply showing the effect of insulin applied after ShK application would be more effective in illustrating your point, and I would omit Suppl. Fig. 3c: what do you think?

Comment [PP15]: Have you determined their input resistance? This would be quite important in the comparison, because it could explain some of the differences in the firing behavior.

Comment [PP16]: Here I would provide some



How can you generate support and refine your planned publication?

*ACChemS 28th Annual Meeting
Sarasota Florida
2006*



Submitting and Resubmitting

1. What is a pre-submission inquiry?
 - a. abstract
 - b. 500 word cover letter
 - c. meeting
2. Navigating the review and comments to reviewers
3. What is a “cost-benefit analysis”?
4. What does it mean to take the “high road”?
5. What if you are asked to be a reviewer?

2. **Comment:** *Why serial sections are not performed to determine the exact location the costal-caudal and in latero-median axes?*

Response: From both our whole mount and cryosections, it is evident that the location of the glomerular projection is not grossly modified. There are very refined software programs that are now available to perform the determination of the precise costal-caudal and latero-median axes (Diego Restrepo Laboratory). These determinations are extremely time consuming and we judge pragmatically that we would be confirming a non effect. It was decided that this degree of quantification would not be a good time investment.

3. **Comment:** *[for the M72 glomerulus in sections on page 11] The description of quantification analysis is uncomplete. It is necessary to give: cryosection number/animal like in page 12 for immunodetection of Ki67 protein.*

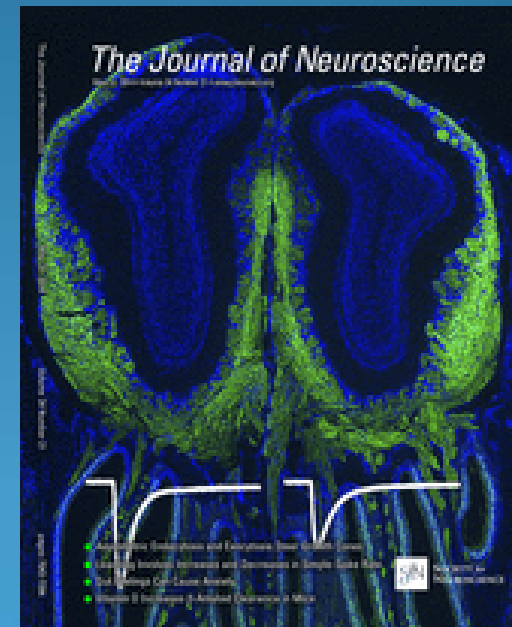
Response: We disagree. When we are immunodetecting Ki67 protein, then we are making our statistical metric by using a sampling of the population. Therefore the range of the sections sampled per animal is necessary to indicate depth and quantity of the measurement. When we are sampling the number and cross sectional area of the M72 glomerulus, there is not a range of sections. We are locating that particular M72 glomerulus (genetically identified) within a single section and then measuring it in that particular animal. Only the number of animals or half bulbs sampled is necessary.

4. **Comment:** *It seems that the SDS-PAGE Western blot analysis of the two proteins Golf and MOR28 are not extracted from the same sample tissue, since number of mice is different for the two proteins.*

Response: This is correct. We sampled Golf in 12 membrane preparations (6 CF, 6 MHF) and MOR28 in 28 preparations (14 CF, 14 MHF). MOR28 was sampled more frequently because its small size (we could cut the nitrocellulose when screening for higher molecular weight proteins).

Increasing your visibility after publication

1. Symposia or talks at conferences
2. University media site
3. Laboratory website
4. Cover art
5. Why such self-promotion?
 - a. Federal funding agencies
 - b. Next reviewer
 - c. Potential collaborators
 - d. Future laboratory members
 - e. Reverse invitations

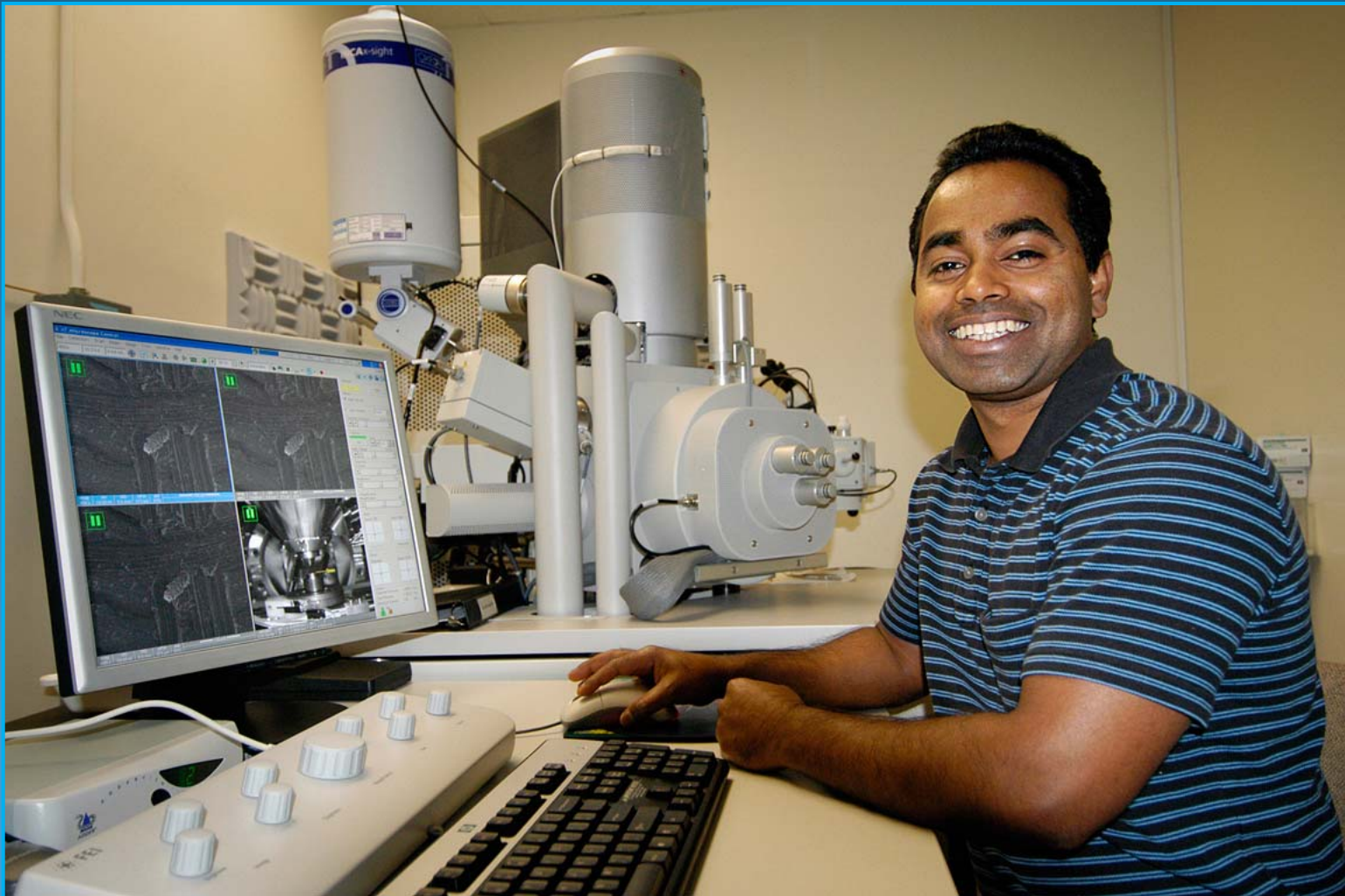


Thiebaud et al., 2014

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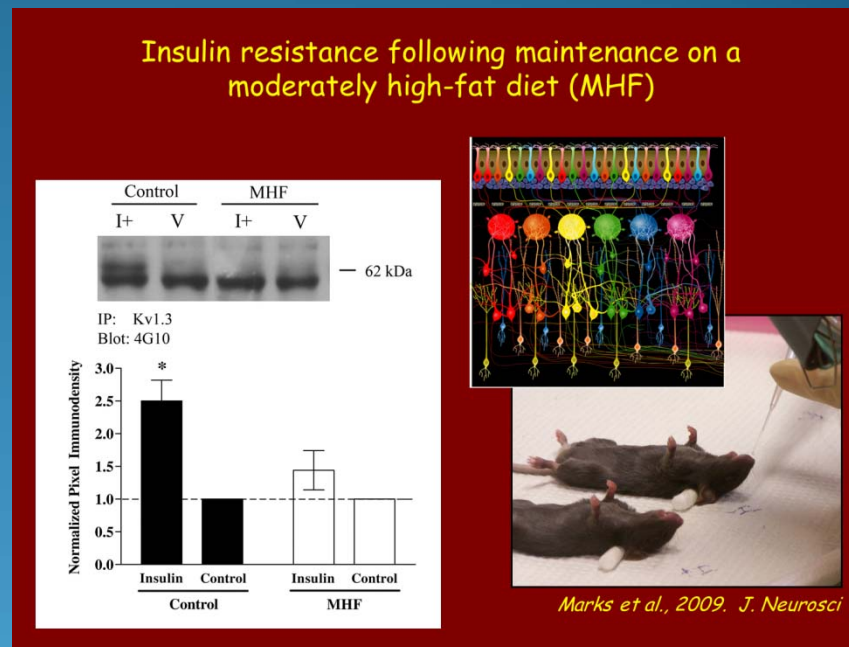
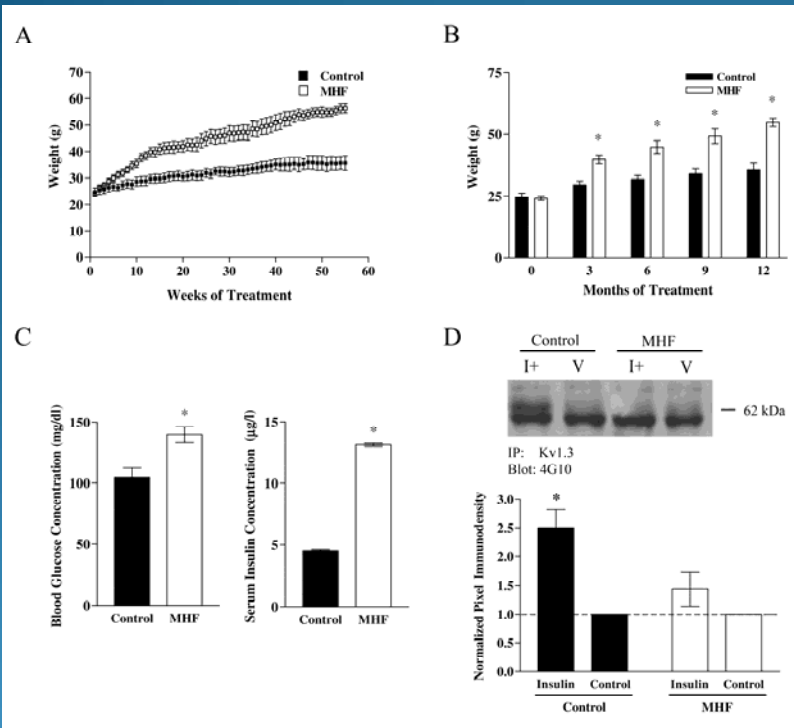
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Oral Communication



Oral Communication Strategies

1. Know your audience
2. Guide the intelligent people in front of you
3. There are many types of talks – know what is expected
 - a. **12 minutes**
 - b. 50 minute research
 - c. classroom teaching
 - d. chalk talk
 - e. International talks
4. How should you prepare?
5. How to you make transitions?
6. Never go over time
7. Best format for answering questions



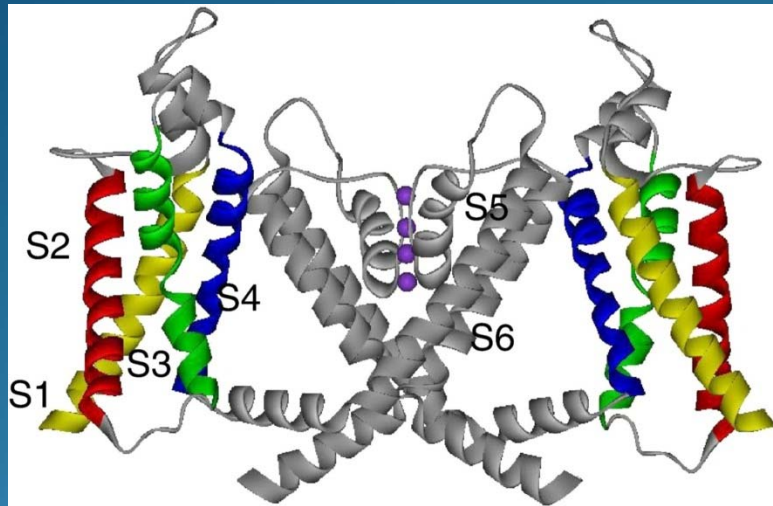
Manuscript "Slide"

Presentation "Slide"

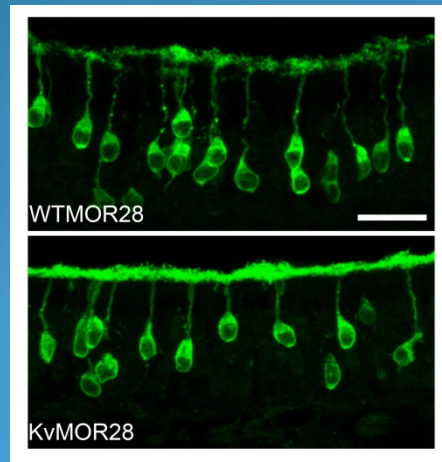
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Find Your Niche



Potassium Ion Channel Camp



Chemical Senses Camp

RESEARCH NEWS

Tracking Insulin to the Mind

Although the idea is controversial, recent evidence suggests that insulin may be needed for normal brain functions—including learning and memory

When one thinks of the hormone insulin, what comes to mind is not ... the mind. Insulin has long been known as the signal that tells every muscle, liver, and fat cell to pull the sugar glucose in from the blood so it can be used to generate the energy the body needs to survive. But the hormone is supposed to hold no sway over the brain—or so the endocrinology textbooks say. Now, growing, although controversial, evidence is beginning to contradict this dictum, suggesting not only that insulin is vital in the brain but that the hormone may influence the brain's most precious functions: learning and memory.

Several lines of work in both lab animals and humans suggest that when neurons in cognitive brain areas such as the hippocampus and cerebral cortex don't get enough insulin or can't respond to it properly, everything from very mild memory loss to Alzheimer's disease can result. "Insulin is active in the brain in more significant ways than people have assumed," says behavioral neuroscientist Claude Messier of the University of Ottawa in Ontario, Canada, whose own work is contributing to that conclusion. "It's a hot topic," adds Mony de Leon of New York University (NYU) School of Medicine, who is one of the researchers newly attracted to the field. Exploring insulin's role in cognition, experts say, might one day point the way to drugs that could reduce memory loss in Alzheimer's disease and normal aging.

Other researchers aren't so sure. "There simply isn't enough information to say that insulin improves memory," says psychologist Paul Gold at the University of Virginia, Charlottesville. One major problem with the insulin hypothesis is that even its proponents can't agree on how the hormone might influence cognition. Some experts suggest that insulin works in the brain much as it works elsewhere in the body—by chaperoning glucose into brain neurons, thereby helping them maintain their energy production. In that case, memory loss might result when brain cells lack insulin or become resistant to it, starving them of glucose—a condition that would amount to diabetes of the brain. But there are also hints that insulin has other beneficial roles, such as spurring neuronal growth and inhibiting the formation of brain lesions

called neurofibrillary tangles that characterize Alzheimer's disease.

Early inklings that insulin might play a role in cognition came in the mid-1980s when a team led by diabetes expert Jesse Roth and neuroscientist Candace Pert, who then were both at the National Institutes of Health, discovered that parts of the rat brain important to learning and memory, including the hippocampus and parts of the cere-

brum other than glucose. Indeed, he suggested that the neurons, like starving people, might be devouring parts of themselves and thus contributing to the cell damage and death that occurs in Alzheimer's disease.

Hoyer also reasoned that a defect in the ability of the patients' brain cells to respond to insulin might be what was keeping the glucose levels high in the blood coming from their brains, just as patients with type II diabetes have high levels of blood glucose because their liver, muscle, and fat cells are resistant to insulin. To test the idea, he decided to study the effect of disrupting the insulin receptor in the brains of rats, making them insensitive to insulin.

When his team injected streptozotocin, a chemical that damages the insulin receptor, into the brains of 18 rats, the researchers found that it seriously impaired the rats' ability to remember a compartment in which they had received an electric shock. And as yet unpublished work by the Heidelberg group now demonstrates that the memory loss that results from impaired insulin signaling in rats is progressive, like the cognitive decline seen in Alzheimer's patients. Concludes Hoyer: "We believe that some cases of Alzheimer's disease are like diabetes mellitus."



Lighting up. Staining with radioactive insulin shows that the rat brain is well supplied with insulin receptors. White indicates the greatest receptor density and purple the least, with yellow in between.

By the early 1990s, other lines of research also began suggesting a role for insulin—or at least glucose metabolism—in memory. Glucose had been shown to enhance memory in rats, and Gold and his colleagues found that temporary and modest increases in blood levels of glucose can improve memory in people as well, including both Alzheimer's patients and normal elderly adults. Because glucose injections into the brains of rats enhanced their memory, Gold concluded that glucose exerts its effects by acting directly on neurons. "Insulin cannot explain much of what we know about glucose enhancement of memory," he maintains. But neuroscientist Suzanne Craft of the Seattle Veterans Administration Medical Center and the University of Washington and her colleagues thought that insulin might be behind effects such as those Gold saw.

She and her colleagues set out to separate the effects of insulin from those of glucose alone in Alzheimer's patients. In an initial experiment, the researchers found that both insulin and glucose infusions produced striking

effects. She and her colleagues set out to separate the effects of insulin from those of glucose alone in Alzheimer's patients. In an initial experiment, the researchers found that both insulin and glucose infusions produced striking

Bridged via Neuromodulation
Clinical Health Impact

Getting Funded

1. Finding the best mechanism

NIH = R03 (7 years); K99R00 (5 years), F32/T32 (3 years total), R15 (AREA award).

Co-investigator or Co-PI

AHA , NSF, private foundations

2. Attend workshops on campus and professional conferences
(Travel Awards July 1 and Jan 1)

3. Get a copy of a funded proposal and an unfunded proposal in your field for the mechanism for which you are applying.

4. A grant is 3x the work load (minimally) than a manuscript.

Getting Funded

5. When is the best time to submit?
6. Criteria for rating a grant application are generally published
7. Read the grant guidelines for good grantsmanship and new regulations
8. Clear strategies, good scientific writing, innovation of both thought, technologies, and analysis. What are the 4 Cs?
9. Same guidelines as a manuscript – to get pre-submission inquiry (Contact Program Officer!), to achieve internal feedback (What is a Mock Study Section?), and how to respond to reviewer comments (but cannot change “journals”).

Thank you!

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<http://opda.fsu.edu/>

- A. Travel Awards July 1 and Jan 1
- B. Weekly Digest
- C. Free memberships to NPA
and versatile PhD

FSU List Serv

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