Matt,

Here are comments on your SA for your consideration. Not in any particular order.

1. Try starting with a broader indication of the importance of the research area to human health. I think you can add to the first sentence the scope of human dehydration…you say this in the third sentence.
2. I think the knowledge gap in your case is specifically the fact that humans and traditional mammalian models like mouse are not tolerant of water derangement. Your second sentence but that seems like a good sentence for the gap.
3. I think the suggested format for the second paragraph would serve you well. Start with the long term goal of understanding mechanisms of osmoregulation and discovering potential targets for intervention. Then introduce your wonderful system making sure to point out that Peromyscus has the same “level” of homology to humans as Mus.
4. I think your central hypothesis is that the adaptations to resilience to dehydration involve regulatory changes in gene expression.
5. I suggest that you consider replacing SA2 with one that allows you to knockout a pathway and bring causality into the process or builds on SA1 by looking at epigenetic patterns. A focus on transgenerational adaptation for example. I get the neonatal experiment and it is interesting and should be done but does not clearly follow from SA1 or as part of the overall hypothesis.