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Electrophysiological responses to conspecific odorants in *Xenopus laevis* show potential for chemical signaling

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Full title: **Electrophysiological responses to conspecific odorants in *Xenopus laevis* show potential for chemical signaling.**

Short title: Electrophysiological responses to conspecific odorants in *Xenopus*

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This paper is in press at PLOS ONE and will be posted at this location in full once available.

Abstract

The fully aquatic African clawed frog, *Xenopus laevis*, has an unusual and highly adapted nose that allows it to separately sample both airborne and waterborne stimuli. The function of the adult water nose has received little study, despite the fact that it is quite likely to receive information about conspecifics through secretions released into the water and could aid the frog in making decisions about social and reproductive behaviors. To assess the potential for chemical communication in this species, we developed an *in situ* electroolfactogram preparation and tested the olfactory responses of adult males to cloacal fluids and skin secretions from male and female conspecifics. We found robust olfactory responses to all conspecific stimuli, with greatest sensitivity to female cloacal fluids. These results open the door to further testing to identify compounds within cloacal fluids and skin secretions that are driving these responses and examine behavioral responses to those compounds. Understanding the role of chemical communication in social and reproductive behaviors may add to our rich understanding of vocal communication to create a more complete picture of social behavior in this species.