

# Heterologous Expression and Functional Analysis of *Aedes aegypti* Odorant Receptors to Human Odors in *Xenopus* Oocytes

 Xin Wang<sup>\*1</sup>, Zhou Chen<sup>\*1,2</sup>, Yifan Wang<sup>1</sup>, Feng Liu<sup>1,3</sup>, Shanshan Jiang<sup>1</sup>, Nannan Liu<sup>1</sup>
<sup>1</sup>Department of Entomology and Plant Pathology, Auburn University <sup>2</sup>Departments of Biochemistry & Biophysics, and Cellular & Molecular Pharmacology, University of California, San Francisco <sup>3</sup>Department of Biological Sciences, Vanderbilt University

\*These authors contributed equally

## Corresponding Author

 Nannan Liu  
 liunann@auburn.edu

## Citation

 Wang, X., Chen, Z., Wang, Y., Liu, F., Jiang, S., Liu, N. Heterologous Expression and Functional Analysis of *Aedes aegypti* Odorant Receptors to Human Odors in *Xenopus* Oocytes. *J. Vis. Exp.* (), e61813, doi:10.3791/61813 (2021).

## Date Published

June 8, 2021

## DOI

10.3791/61813

## URL

jove.com/video/61813

## Materials

Name	Company	Catalog Number	Comments
24-well cell culture plate	CytoOne	CC7682-7524	Used for oocyte culture
African clawed frog	Nasco	LM00535	Used to harvest <i>Xenopus</i> oocytes
Ag/AgCl wire electrode	Warner Instruments	64-1282	Used for microelectrodes
Clampex 10.3	Axon	N.A.	Used for signal recording
Clampfit 10.3	Axon Instruments Inc.	N.A.	Used for data analysis
Collagenase B	Sigma	11088815001	Used for oocyte digestion
Digidata Digitizer	Axon CNS	Digidata 1440A	Used for data acquisition
E.Z.N.A. Plasmid DNA Mini kit	Omega	D6942-01	Used for plasmid preparation
Ethyl-M-aminobenzoate methanesulfonate salt	Sigma	886-86-2	Used for anesthetizing frogs
Glass capillary	FHC	30-30-1	Used for microinjection
Glass capillary	Warner Instruments	64-0801	Used for preparing microelectrodes
GyroMini Nutating Mixer	Labnet	S0500	Used for oocyte digestion
Insect Growth Chambers	Caron Products	model 6025	Used for oocyte incubation
Leica Microscope	Leica	S6 D	Used for cutting mosquito antennae
Light Source	Schott	A20500	Providing light sources for observation
Magnetic stand	Narishige	GJ-1	Used to hold the reference electrode
Micromanipulator	Leica	115378	Used for minor movement of electrode
Micropipette puller	Sutter	model P-97	Used to pull capillaries
Micropipette beveler	Sutter	model BV-10	Used to sharpen capillaries
mMESSAGE mMACHINE T7 kit	Invitrogen	AM1344	Used for synthesizing cRNA
Nanoject II Auto-Nanoliter Injector	Drummond	3-000-204	Used for microinjection

Oligo d(T)20-primed SuperScript IV First-Strand Synthesis System	Invitrogen	18091050	Used for synthesizing cDNA
Olympus Microscope	Olympus	SZ61	Used for microinjection
One Shot TOP10 Chemically Competent E. coli cells	Invitrogen	C404003	Used for transformation
Oocyte clamp amplifier	Warner Instruments	model OC-725C	Used for TEVC recording
QIAquick gel extraction kit	Qiagen	28704	Used for gel purification
TMC Vibration Isolation Table	TMC	63-500	Used for isolating the vibration from the equipment
TURBO DNA-free kit	Invitrogen	AM1907	Used to remove DNase and other ions in RNA