



Cornell Heart Lung Blood Resource for Optogenetic Mouse Signaling  
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## CHROMus<sup>TM</sup> Strain Information Sheet

Strain Name:

Common Name: **acta2-RCaMP1.07**

CHROMus<sup>TM</sup> designation and lines available: R24:B3:L2; R24:B3:L3

Jackson Stock number: NA

Development: The red fluorescent calcium indicator RCaMP1.07 was inserted at the ATG site of the acta2 gene in the BAC RP23-370F21 (CHORI) through homologous recombination. The resulting recombinant BAC was injected into the male pronucleus of fertilized oocytes which were then implanted into pseudo pregnant females. Resulting offspring were screened for the presence of the transgene (founders). Colonies were established from each founder and tested for expression.

Transgenic Numbers:

# pups born	# founders	# expressers
18	3	3

Description: The genetically encoded calcium indicator RCaMP1.07 is expressed in smooth muscle cells in blood vessels, airways of the lung and gut. Expression may be present in other smooth muscle containing tissues which have not been examined. RCaMP1.07 responds to calcium levels in the cell. When calcium increases, a conformation change occurs resulting in an increase in fluorescence. When calcium decreases, fluorescence decreases. This mouse is useful for examining calcium signaling in smooth muscle tissues.

Phenotypic Data:

Native fluorescent images:

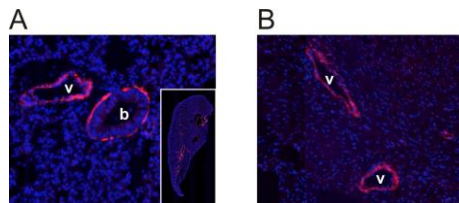


Figure 1: Native fluorescent images (RCaMP1.07) showing expression in A) lung and B) heart. v: vessel b: bronchiole

CHROMus<sup>TM</sup>, developing and distributing transgenic mice to examine cell signaling in the cardiac, vascular, pulmonary and immune systems is directed by Dr. Michael Kotlikoff, Cornell University. Contact us at [chromus@cornell.edu](mailto:chromus@cornell.edu) or visit us at [chromus.vet.cornell.edu](http://chromus.vet.cornell.edu)



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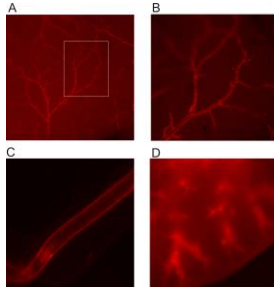


Figure 2: Native fluorescence (RCaMP1.07) in whole organs A) brain 2x B) brain 5x C) vessel 5x D) lung 2.7x

Also available online: video of calcium signaling in the gut and atrium of the heart  
[\(http://chromus.vet.cornell.edu/acta2rcamp107/\)](http://chromus.vet.cornell.edu/acta2rcamp107/)

Genotyping Protocol:

Primer B119:	GCT TGT CTG TAA GCG GAT GCC
Primer B120:	TGC TGC TGC CAC TCT AGT GAG AAA
Expected size of product:	602 bp
Cycling conditions:	PCR results:
1. 94°C 3 minutes	
2. Repeat 30 times	
a. 30 sec @ 94°C	
b. 30 sec @ 58°C	
c. 30 sec @ 72°C	
3. 72°C 5 minutes	
10°C hold	

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Acknowledgement: Please inform us of any publications resulting from the use of this mouse and use the following statement to acknowledge their development:

“The mouse strain acta2-RCaMP1.07 was developed by CHROMus™; funded by NIH R24HL120847.”