



# Measuring Signal Transduction in iPSC derived Cardiac Myocytes

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Montana Molecular

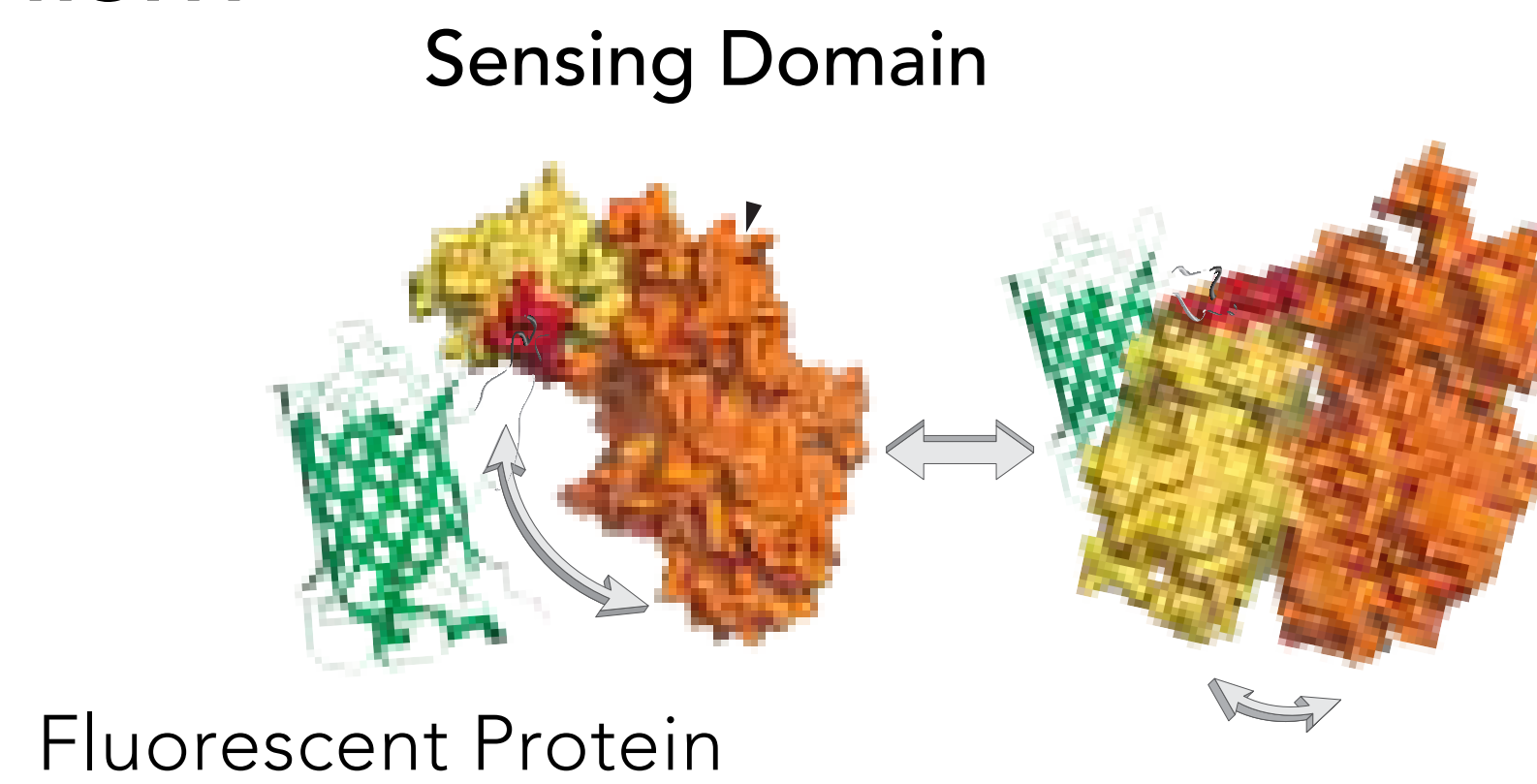
1. Montana Molecular, Bozeman, MT 2. AxioGenesis

## Montana Molecular Biosensors

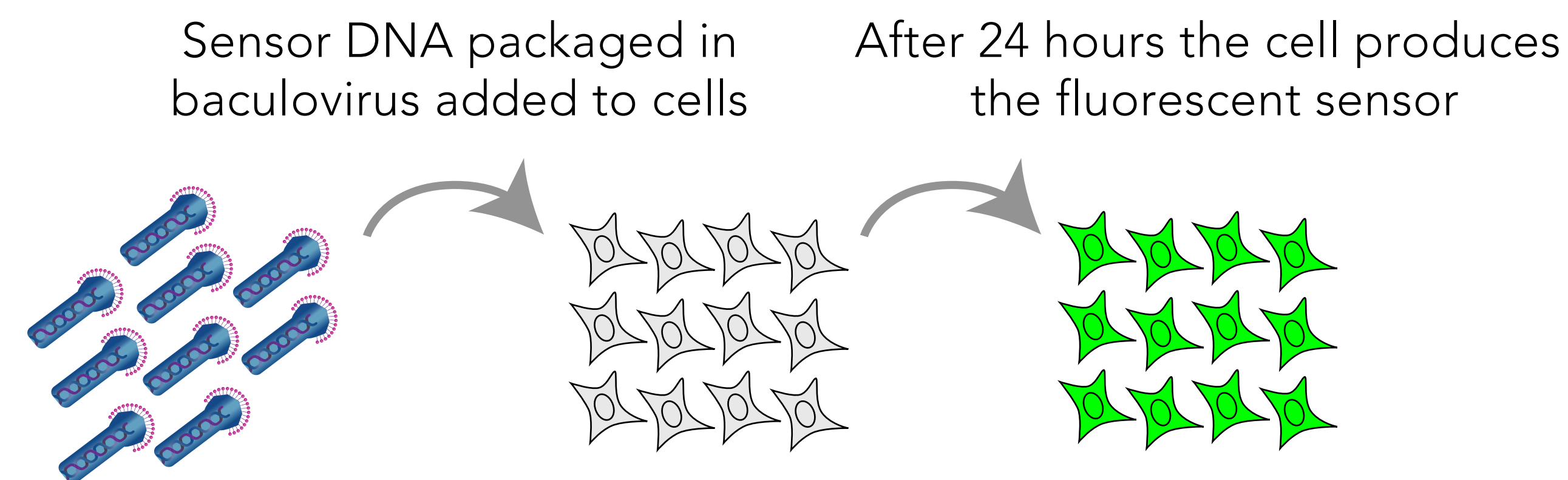
### Advantages

- Genetically-encoded
- No cell-lysis required
- No addition of exogenous co-factors
- Can be targeted to distinct populations of cells and cellular compartments
- Multiplexed detection of signal transduction cascades
- Kinetic measurements in living cells
- Robust Z' statistics

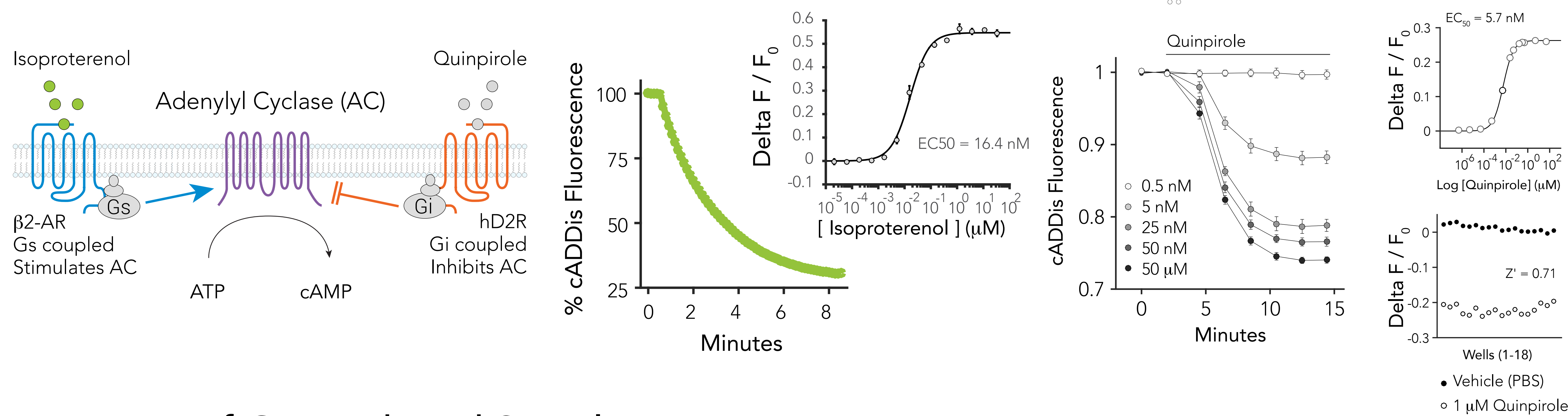
### Mechanism



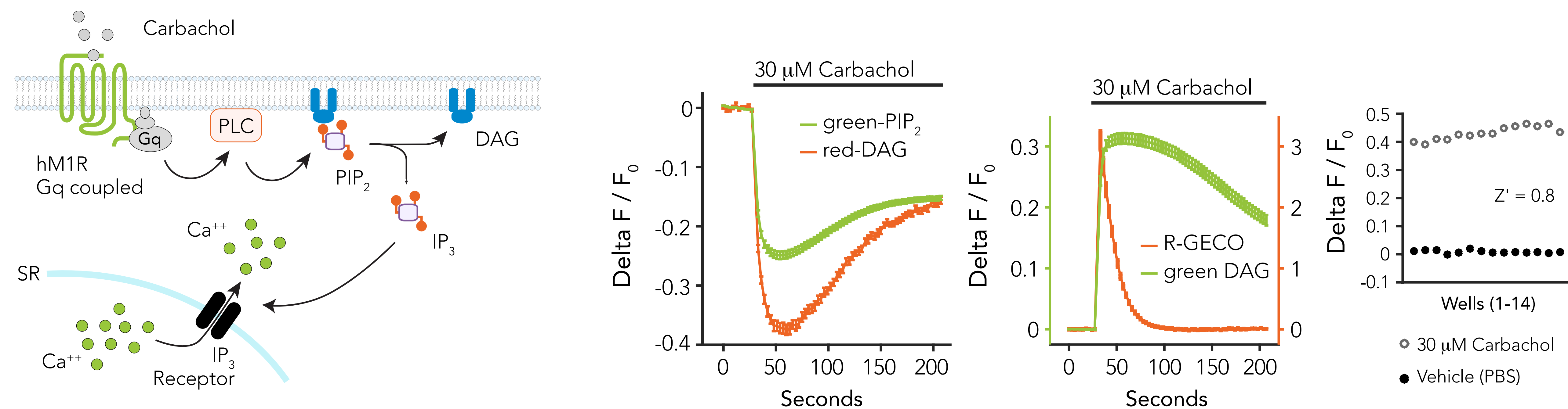
### Delivery & Expression



## Detection of Gs and Gi mediated Signaling



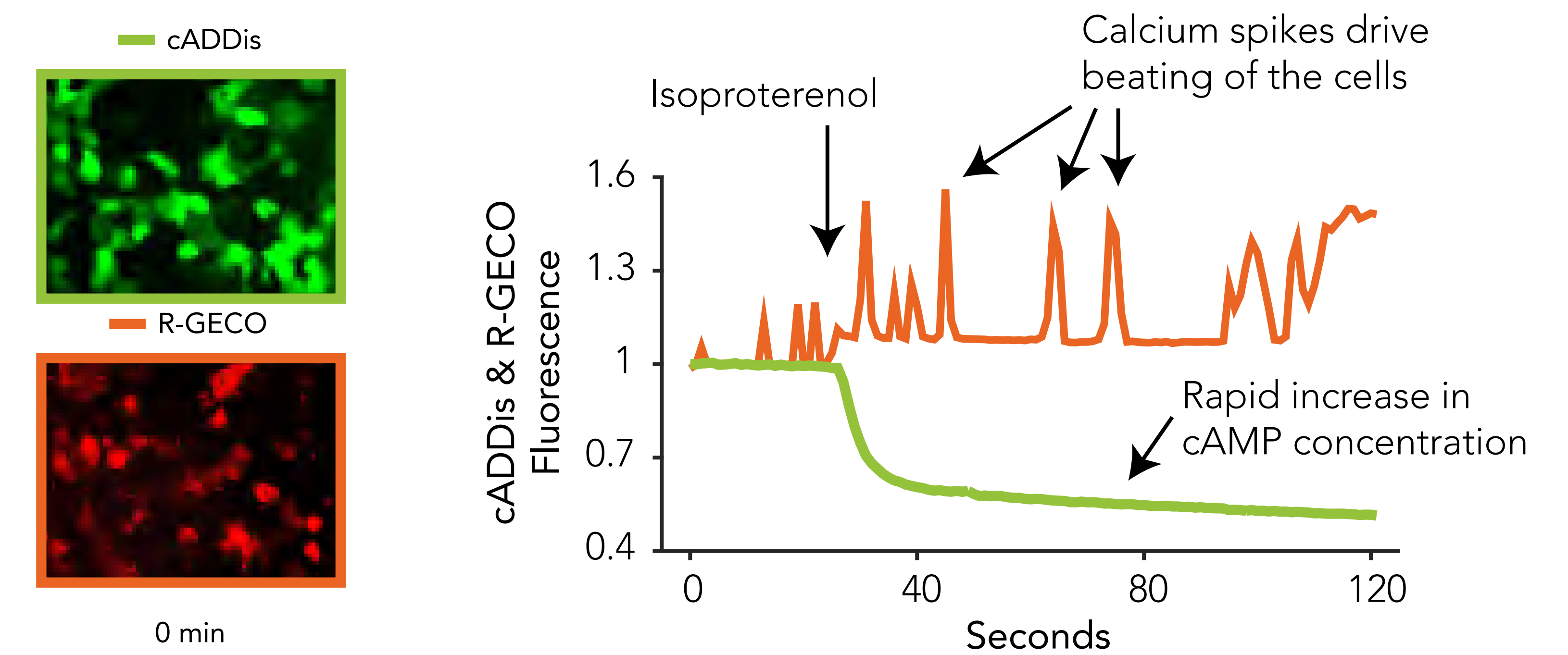
## Detection of Gq mediated Signaling



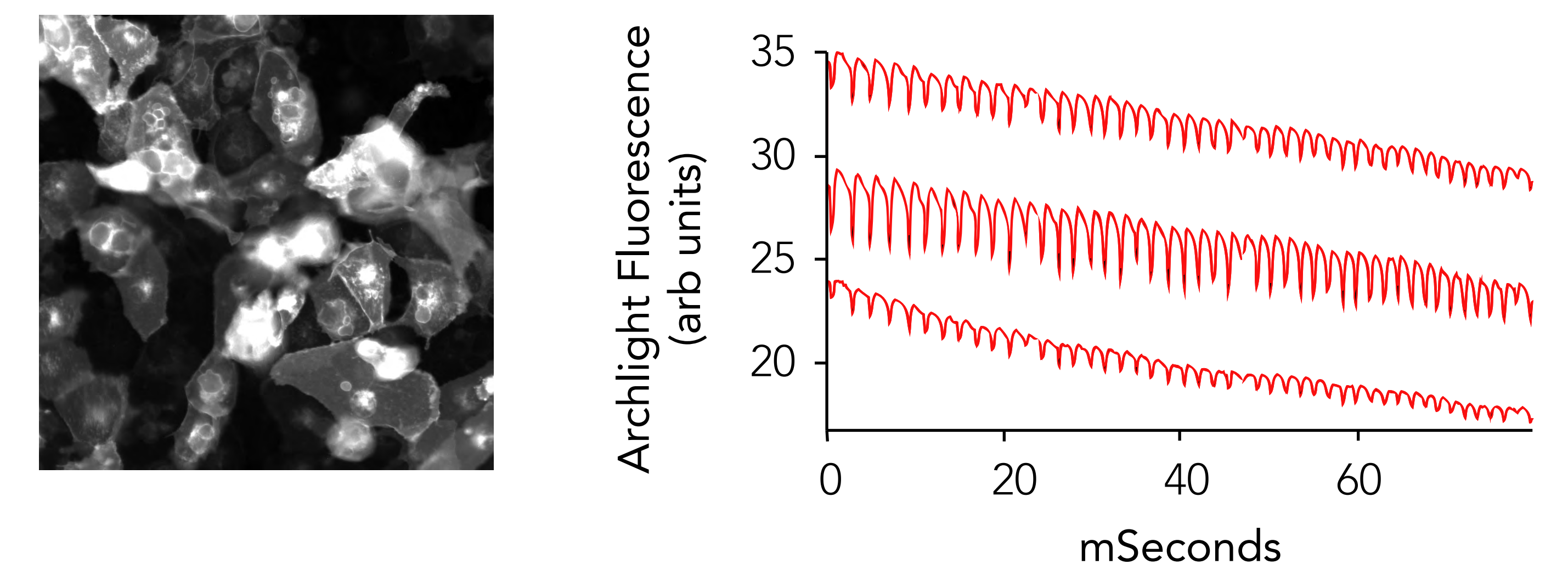
## hiPSC derived Cardiomyocytes

### Axiogenesis Cor.4U Cardiomyocytes

- Efficient transduction of Sensors using BacMam
- Multiplexed cAMP and Ca<sup>2+</sup> imaging



### Voltage Imaging



### Hamamatsu FDSS recordings of Cardiomyocytes transduced with R-GECO Ca<sup>2+</sup> Sensor

Dofetilide	Nifedipine	Isoproterenol	
A1 - A6: 0.3 nM	C1 - C6: 30 nM	E1 - E6: 30 nM	G - H: Controls
A7 - A12: 1 nM	C7 - C12: 100 nM	E7 - E12: 100 nM	E6 - H6: No Virus
B1 - B6: 3 nM	D1 - D6: 300 nM	F1 - F6: 300 nM	
A7 - A12: 1 nM	D7 - D12: 1000 nM	F7 - F12: 1000 nM	

