

HIGH PERFORMANCE EMCCD & CCD CAMERAS FOR LIFE SCIENCES



CUSTOMER REFERENCE

Calcium Imaging

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BACKGROUND

The research team at Harvard is gating mechanically sensitive ion channels, which open in response to force on the channel proteins. They study these channels primarily in vertebrate hair cells. Their research involves high speed calcium imaging on auditory hair cells to localize transduction proteins.

CHALLENGE

Because the cell structures are small and the response occurs on a sub-millisecond time scale, there was a significant challenge in finding a method for imaging the calcium influx into the cell, making it virtually impossible to pursue this topic and complete the research.

SOLUTION

To meet the team's imaging challenge, options were limited. The camera had to support both high sensitivity and frame rate requirements. Additionally, when studying auditory hair cells, which are mechanically sensitive, it was important that the camera did not vibrate. The Evolve 128 met all of these requirements and was selected as the team's imaging solution.

The team also enjoyed working with Photometrics. They found that Photometrics was very competitive and willing to work with other equipment providers, making the entire lab setup easier and without complication.



⁶⁶ The Evolve 128 EMCCD camera enables me to perform a very difficult experiment on a routine basis that would otherwise be impossible."



Rat cochlear hair cells taken from an age P4 rat and cultured three days. Acquisitions were made at 500 fps (2 ms exposures) with a magnification of 300x, giving an image area of 10.24 x 10.24 µm². The outer hair cell (OHC, top) and inner hair cell (IHC, bottom) were labeled with Fluo-4FF dye.

