

Non-invasive technique to "light up" animal cells

March 21 2014, by Kathleen Haughney

A Florida State University scientist is part of a team of researchers that has developed a non-invasive way to "light up" animal cells, a development that could significantly advance cell-based therapies and pave the way for more effective cancer research in the long run.

Their findings are published in the latest issue of the journal *Nature Methods*.

"This is the just the start of what's going to happen in the future," said Michael Davidson, a scientist with the National High Magnetic Laboratory at Florida State University. "A lot of cell biology right now is being unraveled by the use of fluorescent proteins."

In this case, Davidson and colleagues from Stanford University and University of Hawaii were able to develop a [fluorescent protein](#) that appeared bright red once injected in the [cells](#), making it easier for them to track with microscopes.

Previously developed fluorescent proteins were often too difficult to see in [animal cells](#).

But the bright red properties of these proteins allow scientists to see what's going on if they take a tissue sample.

"You can inject it into tissue and actually see what's going on in there—giving us a signal to track to see if there is cancer or a brain

tumor present," Davidson said.

Davidson has been collaborating with the paper's senior author Michael Lin, assistant professor of pediatrics and of bioengineering at Stanford, for several years. Davidson's role is to manufacture the proteins, something he does frequently in collaboration with scientists and researchers from around the world.

The work published in *Nature Methods* is a "step forward," Davidson said, in how scientists and doctors examine cells and determine why and how changes are occurring.

One particular area that scientists hope that these proteins can shed light on is why certain tumors metastasize.

"That's a major problem with tumors," Davidson said. "They turn metastatic. Something causes these cells to grow a pair of legs and walk around in that body. We need to find out why that's happening."

More information: "Non-invasive intravital imaging of cellular differentiation with a bright red-excitable fluorescent protein." Jun Chu, et al. *Nature Methods* (2014) [DOI: 10.1038/nmeth.2888](https://doi.org/10.1038/nmeth.2888). Received 16 September 2013 Accepted 16 February 2014 Published online 16 March 2014

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