PROJECT RESUME

This project addresses a fundamental problem of tissue development. Many internal organs are based on tree-like arrangements of branched tubes. These grow by some cells leading the extension of a branch while others remain where they are, not advancing and becoming the 'valleys' between the branches. These cells begin identical, and nobody knows how they become different, though there are several theories (one of which was disproved by an AS-funded student in this lab).

One theory is that curving cells outwards makes them advance, and this stabilizes the convex curve and therefore the advancing activity, while neighbouring cells are forced to curve concavely by the advancing ones so are always held back. We have a cell line (that will make branched trees) with a light-activated genetic construct that makes them make convex bends. The student will apply light locally and briefly, and see if this makes stable branch ends.

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