

1154-AG-2650 **Erika Tatiana Camacho*** (erika.camacho@asu.edu), 4701 W. Thunderbird Rd., Glendale, AZ 8530, and **Thierry Leveillard** and **Danielle Brager**. *Modeling Cone Aerobic Glycolysis*.

Patients affected by the inherited retinal disease retinitis pigmentosa, experience loss of vision due to photoreceptor degeneration of the rods followed by the cones, leading to irreversible blindness. Photoreceptors rely on aerobic glycolysis to supply the metabolites necessary for outer segment renewal and maintenance. In this work, we develop a mathematical model to investigate the biochemical processes in the cones triggered by glucose catabolism and by Rod-derived cone viability factor (RdCVF), in order to better understand the mediated survival exerted by the rods on the cones. We demonstrate via mathematical analysis the mediated effects of RdCVF on cone survival, with regard to carbohydrate metabolism, antioxidant lipid synthesis, and energy production. Our findings demonstrate the utility of a mathematical model of aerobic glycolysis for exploration of the roles of various pathways. Additionally, our model illustrates the relevance of quantitative models to fully understand the mechanisms driving cone death in RP. (Received September 17, 2019)