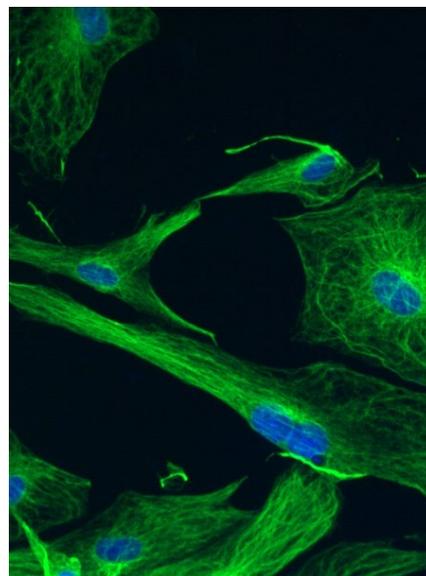


## CHOLESTÉROL AND GLAUCOMA: WHEN THE EYE BECOMES TANGLED UP

Glaucoma is the second cause of blindness worldwide. It is a chronic eye disease characterized by retina degeneration and progressive death of retinal neurons. To date, therapeutic strategies have been based on lowering intra-ocular pressure, which is an important risk factor for glaucoma. To envisage new routes of prevention of this disease, the team “Eye, Nutrition and Cell Signaling” of the CSGA scrutinizes the biological mechanisms implicated in the physiopathology of glaucoma, notably the role of certain lipids.

The retina contains Muller glial cells, which are responsible for tissue homeostasis and neuron protection. In a recent publication in *Chemistry and Physics of Lipids*, Ségolène Gambert and collaborators reported the impact of 24-S-hydroxycholesterol, which is one of the forms of cholesterol elimination, on the membrane composition of Muller glial cells. Indeed, this cholesterol derivative is overexpressed during glaucoma, which could alter the physiology of the Muller cells. To test this hypothesis, Muller cells were treated in vitro with 24-S-hydroxycholesterol. This treatment rapidly modified the distribution of certain proteins in the cell membrane, notably proteins implicated in cell adhesion and oxidative stress.



This study shows that dysregulation of cholesterol metabolism affects the architecture of retinal glial cells, a mechanism that could be implicated in the retina degeneration. Future research will consist of evaluating the role of cholesterol metabolism in an experimental glaucoma model in rodents.

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### To know more

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### Key-words

Eye; retina; glaucoma; Muller cell; cholesterol; proteomic;