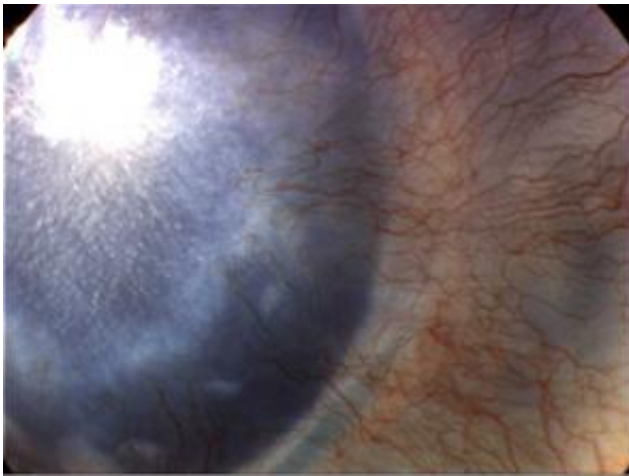


Eye research breakthrough yields new clues for treating diseases

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An international research team has made a discovery about an eye function that could pave the way for better therapies for a wide range of diseases including cancer.

Researchers from the University of Aberdeen were involved in the collaboration that has discovered the answer to a query that has puzzled scientists for centuries.

In groundbreaking research published today in *Nature*, the team report that they have identified the molecule found in the eye that prevents blood vessels forming in the cornea. This is a major breakthrough

because understanding what inhibits the growth of blood vessels, could help with the development of drugs to curb a number of key diseases.

It could also lead to new therapies for treating eyes diseases and eye injuries.

Dr Martin Collinson, a Senior Lecturer at the University of Aberdeen, said: “It is an amazing finding to have identified the molecule that prevents blood vessels from growing in the cornea.

“The cornea is widely used by scientists who hope to study how blood vessels grow or how to inhibit the growth of new blood vessels. This knowledge will help to treat diseases like cancer, heart disease, rheumatoid arthritis, stroke and eye disorders like macular degeneration.”

The cornea is our window on the world – if it contained blood vessels it would not be transparent and we would not be able to see. If you study a normal eye you will see blood vessels in the whites of the eye but these stop at the cornea.

Dr Collinson said: “No-one has ever really known why. People have been wondering why the cornea is avascular – or free from blood vessels – since the days of the Ancient Greek and Indian physicians.

“There is a real paradox here in that the chemical that makes blood vessels grow is called VEGF-A. Ironically the corneal is full of this chemical so what is going on?”

The researchers discovered that a receptor called soluble VEGFR1 – also known as s-ftl1 – acts as a sponge and mops up all the VEGF-A which would otherwise make blood vessels grow into the cornea.

Disease or injury can cause the cornea to vascularise - or form blood vessels. Vascularisation is also important for diseases like cancer, as tumours are able to grow because of their ability to attract blood vessels.

Dr Collinson added: “In this paper it has been possible to show that vascularisation in genetically diseased corneas is associated with loss of this important receptor VEGFR-1. What gives us great hope for therapeutic strategies is that it appears that blood vessels in diseased corneas can be easily regressed by giving them this missing protein back.”

Source: University of Aberdeen

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