

# New study sheds light on how and when vision evolved

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The study, which used computer modelling to provide a detailed picture of how and when opsins evolved, sheds light on the origin of sight in animals, including humans.

The [evolutionary origins](#) of vision remain hotly debated, partly due to inconsistent reports of [phylogenetic relationships](#) among the earliest opsin-possessing animals.

Dr Davide Pisani of Bristol's School of Earth Sciences and colleagues at NUI Maynooth performed a computational analysis to test every hypothesis of opsin evolution proposed to date.

The analysis incorporated all available genomic information from all relevant animal lineages, including a newly sequenced group of [sponges](#) (*Oscarella carmela*) and the Cnidarians, a group of animals thought to have possessed the world's earliest eyes.

Using this information, the researchers developed a timeline with an opsin ancestor common to all groups appearing some 700 million years ago. This opsin was considered 'blind' yet underwent key [genetic changes](#) over the span of 11 million years that conveyed the ability to detect light.

Dr Pisani said: "The great relevance of our study is that we traced the earliest origin of vision and we found that it originated only once in animals. This is an astonishing discovery because it implies that our study uncovered, in consequence, how and when vision evolved in

humans."

These results are reported in the *PNAS* journal article 'Metazoan opsin evolution reveals a simple route to animal vision'.

Provided by University of Bristol

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