



Pixium Vision and partners publish paper on photovoltaic subretinal prosthesis PRIMA in *Nature Biomedical Engineering*

- ***Paper examines behavioral responses in non-human primates***
- ***Data confirms the mechanism of action observed in the clinical evaluation of the prosthesis in humans***

Paris, France, December 02, 2019 – 5:45 PM CET - Pixium Vision (FR0011950641 - PIX), a bioelectronics company developing innovative bionic vision systems to enable patients who have lost their sight to lead more independent lives, today announces the publication of a scientific paper in the *Nature Biomedical Engineering* journal on behavioral responses to its Prima System, a photovoltaic subretinal prosthesis, implanted in non-human primates.

Retinal dystrophies and Age-related Macular Degeneration (AMD) related to photoreceptor degeneration can cause blindness. In blind patients, although the electrical activation of the residual retinal circuit can provide useful artificial visual perception, the resolutions of current retinal prostheses have been limited either by large electrodes or small numbers of pixels.

The paper, available [here](#), reports on the evaluation, in three awake non-human primates, of PRIMA, a previously reported near-infrared-light-sensitive photovoltaic subretinal prosthesis. It shows that single pixel stimulation of the prosthesis within radiation safety limits enabled eye tracking in behaving animals. Animals indicated their visual perception by responding to near-infrared stimulations directed at the implant with saccades, such implant-induced responses were present two years after device implantation.

“The tests we carried out on non-human primates show the capability of Pixium Vision’s PRIMA implant to stimulate selectively the retina at a high resolution and with low input energy levels. We are very happy to publish these excellent results that were made possible by the successful collaboration of our institutions in the context of the SightAgain grant.” says **Serge Picaud, INSERM Research Director at the Paris Vision Institute** and the corresponding author of the paper.

*“We are very proud to have published this paper jointly with our academic partners from Institut de la Vision and Foundation Adolphe de Rothschild in *Nature Biomedical Engineering*. The data confirms the high resolution observed in the clinical evaluation of the Prima System in patients affected by atrophic AMD, and we look forward to further demonstrate the benefit for patients in daily activities. We continue to test feasibility for new upgrades to the system in parallel in both Europe and the US, and will use the data as the basis for our pivotal study starting in H1 2020,”* says **Guillaume Buc, Chief Technology Officer of Pixium Vision** and one of the authors of the paper.

Nature Biomedical Engineering is an online-only monthly journal publishing original research, reviews and commentary of high significance to the biomedical engineering community.

The published study was conducted in partnership with the Paris Vision Institute (Sorbonne University, INSERM, CNRS, <http://www.institut-vision.org/fr/>) and has been partially financed by a grant from the French “Programme d’Investissements d’Avenir” operated by Bpifrance.

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About PRIMA

PRIMA is a new generation miniaturized and totally wireless sub-retinal implant. The 2x2 millimeters wide and 30 microns thick photovoltaic chip contains 378 electrodes. Implanted under the retina via a minimally invasive surgical procedure, it acts like an array of tiny solar panels powered by pulsed near infrared light projected from a miniature projector integrated into augmented reality glasses, along with a mini camera. PRIMA is designed to restore sight in patients blinded by retinal dystrophies – a very significant unmet medical need. The target population includes patients with atrophic dry Age-related Macular Degeneration (dry AMD), and Retinitis Pigmentosa (RP). In addition to a clinical trial with five atrophic dry-AMD patients in France, PRIMA is approved for a similar five-patients study in USA.

Pixium Vision is creating a world of bionic vision for those who have lost their sight, enabling them to regain partial visual perception and greater autonomy. Pixium Vision's bionic vision systems are associated with a surgical intervention and a rehabilitation period. Pixium Vision is in clinical stage with PRIMA, its sub-retinal miniature photovoltaic wireless implant system, designed for patients who have lost their sight due to outer retinal degeneration, initially for atrophic dry age-related macular degeneration (dry AMD). Pixium Vision collaborates closely with academic and research partners spanning across the prestigious Vision research institutions including Stanford University in California, Institut de la Vision in Paris, Moorfields Eye Hospital in London, Institute of Ocular Microsurgery (IMO) in Barcelona, University hospital in Bonn, and UPMC in Pittsburgh, PA. The company is EN ISO 13485 certified and qualifies as "Entreprise Innovante" by Bpifrance.

For more information, please visit:  www.pixium-vision.com;
And follow us on:  @PixiumVision;  www.facebook.com/pixiumvision
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Pixium Vision is listed on Euronext Paris (Compartment C). Pixium Vision shares are eligible for the French tax incentivized PEA-PME and FCPI investment vehicles.

Pixium Vision is included in the Euronext CAC All Shares index

Euronext ticker: PIX - ISIN: FR0011950641 – Reuters: PIX.PA – Bloomberg: PIX:FP

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Pixium Vision provides this press release as of the aforementioned date and does not commit to update forward looking statements contained herein, whether as a result of new information, future events or otherwise.

For a description of risks and uncertainties which could lead to discrepancies between actual results, financial condition, performance or achievements and those contained in the forward-looking statements, please refer to Chapter 4 "Risk Factors" of the company's Registration Document filed with the AMF under number D.19-0364 on April 18, 2019 which can be found on the websites of the AMF - AMF (www.amf-france.org) and of Pixium Vision (www.pixium-vision.com).