PRESS RELEASE

Pixium Vision announces peer-reviewed publications demonstrating the potential of the Next Generation PRIMA implant to restore vision at five times higher resolution than current implant

- New implants leverage existing PRIMA design with significant increase in spatial resolution
- Potential to restore vision to levels sufficient for face recognition and reading smaller fonts: 20/100 with no magnification and up to 20/20 with electronic magnification
- Data on the new implants published in top-tier scientific journals *Nature Communications* and *Journal of Neural Engineering*
- Program developed in collaboration with academic partner Stanford University, where Pixium holds the worldwide exclusive license

Paris, France, January 12, 2023 – 07:00 CET – Pixium Vision SA (Euronext Growth Paris - FR0011950641; Mnemo: ALPIX), a bioelectronics company which develops innovative bionic vision systems to enable visually impaired and blind patients to live more independent lives, announces today that the second generation of implants for its bionic vision system PRIMA for atrophic age-related macular degeneration (AMD) could restore vision at five times higher resolution than the current PRIMA implants.

Pixium Vision is developing the second generation of PRIMA implants in collaboration with its long-term academic partner Stanford University. A recent peer-reviewed paper published in *Nature Communications,* entitled *"Electronic photoreceptors enable prosthetic visual acuity matching the natural resolution in rats",* outlined results from the testing of the new implant in rats, which demonstrated:

- A high-resolution prosthetic vision based on a novel design of a photovoltaic array, where field confinement is achieved by dynamic current steering
- Computational modeling of the field confinement in such an optically controlled circuit validated by *in vitro* and *in vivo* measurements
- The grating acuity *in vivo* with 40μm pixels matches the pixel pitch, while with 20μm pixels it reaches the 28μm limit of the natural visual resolution in rats
- Customized field shaping adapting to individual retinal thickness and distance from the implant, paving the way to higher acuity of prosthetic vision in AMD patients

These results pave the way to prosthetic vision with acuity exceeding 20/100, over five times higher than the current best prosthetic acuity, and with electronic magnification, it may reach 20/20.

The full paper is available online here.

"Our new second generation PRIMA implant represents a huge leap forward in prosthetic vision and offers a real chance to restore sight close to natural vision in patients blinded by retinal degeneration," said Lloyd Diamond, Chief Executive Officer of Pixium Vision. "Working closely with our partners at Stanford University, we have leveraged the design of our existing PRIMA system, which is already the most advanced prosthetic currently in use in clinical trials. By redesigning the electric circuitry and exponentially increasing the number of electrodes in the new implant, we have achieved selective stimulation of the inner retinal neurons with five times the resolution of our current implant. With this level of visual acuity, we expect to be able to restore vision in those affected by dry AMD to the extent where they can not only read comfortably but also recognize faces, which would be an unprecedented achievement in treating blindness in these patients."

These next generation implants are now being optimized for clinical trials, which could be initiated within the next couple of years. They are based on the design of the original PRIMA implants, which were also co-developed by Pixium Vision and Stanford University. Two additional peer-reviewed papers recently published in the *Journal of Neural Engineering* describe how the number of pixels and the resolution of the photovoltaic retinal implants could be increased using the original (bipolar) PRIMA pixels and the novel (monopolar) pixel design in human patients.

"Pixel size limit of the PRIMA implants: from humans to rodents and back" outlines how an increase in the width of the PRIMA implant from 2 to 3 mm and a reduction in the pixel size from 100 to 75μm would nearly quadrupole the number of pixels, which would be very beneficial for patients by increasing their field of view.

The full paper is available online here.

"Photovoltaic implant simulator reveals resolution limits in subretinal prosthesis" demonstrated that by utilizing monopolar pixels as both anodes and cathodes to suppress crosstalk, most patients may achieve resolution no worse than 48μm. Closer proximity between the electrodes and the inner nuclear layer enhances the stimulus strength and contrast and may enable 24μm resolution with 20μm pixels, at least in some patients. A resolution of 24μm on the retina corresponds to 5 times higher acuity than the clinical average with the current implant, promising a significant improvement of central vision for many AMD patients.

The full paper is available online here.

"We are very pleased with the current clinical results and with the progress we are making with Pixium Vision in the development of the next generation of PRIMA implants, described in these three peer-reviewed papers," said **Professor Daniel Palanker from the Department of Ophthalmology at Stanford University and senior author of the *Nature Communications* and *Journal of Neural Engineering* papers.** *"The new implants are showing great potential in providing much higher resolution, as well as adjustable field confinement in the retina, which can be optimized for every patient. We are looking forward to investigating these implants in clinical settings, and hope that they will alleviate the visual impairment in many AMD patients."*

About Pixium Vision

Pixium Vision is creating a world of bionic vision for those who have lost their sight, enabling them to regain visual perception and greater autonomy. Pixium Vision's bionic vision systems are associated with a surgical intervention and a rehabilitation period. PRIMA System with a sub-retinal miniature photovoltaic wireless implant is in clinical testing 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, including some of the most prestigious vision research institutions in the world, such as 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.

Forward-Looking Statements. This press release contains certain forward-looking statements. Although the Company believes its expectations are based on reasonable assumptions, these forward-looking statements are subject to numerous risks and uncertainties, which could cause actual results to differ materially from those anticipated. For a discussion of risks and uncertainties which could cause the Company's actual results, financial condition, performance or achievements to differ from those contained in the forward-looking statements, please refer to the Risk Factors ("Facteurs de Risques") section of the Company's 2021 Half-Year Financial Report and other documents the Company files with the AMF, which is available on the AMF website (www.amf- france.org) or on the Company's website.

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Euronext ticker: ALPIX - ISIN: FR0011950641

Pixium Vision shares are eligible for the French tax incentivized PEA-PME and FCPI investment vehicles.

Pixium Vision is included in the Euronext GROWTH ALLSHARE index

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