Inflammasome Therapeutics' Kamuvudines May be Answer to Preventing Blindness in Aging Population

Newton, MA (April 19, 2021) – Inflammasome Therapeutics (https://www.inflam.com), a private company developing therapies for prevalent, degenerative diseases, reported newly published research continues to confirm the potential of the company's proprietary Kamuvudines, to be an effective treatment for geographic atrophy (GA), a severe and untreatable form of age-related macular degeneration (AMD) that causes 20% of legal blindness in the US.

In research published last week in Nature's *Signal Transduction and Targeted Therapy* (https://www.nature.com/articles/s41392-021-00537-z), a team of scientists from throughout the world, led by Dr. Jayakrishna Ambati, DuPont Gerry III Professor and Founding Director of the Center for Advanced Vision Science at the University of Virginia, found that deposits of amyloid beta protein in the retina of AMD patients triggers a part of the immune system (activation of inflammasomes), leading to death of cells that make up one of the inner layers of the eye. When these cells die so does the overlying retina and vision is lost. The investigators also found that a class of existing AIDS drugs, nucleoside reverse transcriptase inhibitors (NRTIs) and safer derivatives of these drugs (Kamuvudines) halt inflammasome activation and prevent cell death.

This research further supports prior studies published in *Science, Nature Communications, and Proceedings of the National Academy of Sciences (PNAS)*, that have demonstrated NRTIs, and now Kamuvudines, have the potential to treat other inflammasome-mediated neurodegenerative diseases such as Alzheimer's disease and multiple sclerosis.

"This is one of multiple publications demonstrating that NRTIs are highly effective at inhibiting inflammasome activation, which is associated with those chronic diseases as well as diabetes, in addition to AMD," said Dr. Ambati. NRTIs have been in use for more than 25 years to treat HIV and Hepatitis B infections. "The problem with long-term NRTI use, however, is that while they inhibit inflammasomes they also have significant side effects that prevent their use for non-life-threatening diseases. Kamuvudines are slightly modified forms of NRTIs designed to avoid their toxicity but have the same inflammasome inhibiting activity. This work shows that they may be a good treatment option for GA."

Dr. Paul Ashton, President and CEO of Inflammasome Therapeutics, the company commercially developing Kamuvudines for treatment of inflammasome-activated diseases, noted that GA currently has no approved treatment and ultimately results in blindness. "GA has been a very difficult clinical target. It's the last common blinding eye disease for which we have no treatment. Over the past 15 years more than 100 clinical trials for GA treatments have failed. These trials have generally tried to inhibit specific toxic processes, but in this disease there are a lot of things going on. Complement, Alu-RNA, iron toxicity and amyloid beta are all upregulated in GA. Taking out any one of them seems not to

help. However, they all work through the master switch of inflammasome activation. Stop that and maybe you stop the disease. With Kamuvudines it seems we have a class of drug that can do that."

"We look forward to exploring Kamuvudines in GA and also other inflammasome-mediated diseases such as MS and Alzheimer's disease," said Dr. Ashton.

Inflammasome Therapeutics (www.inflam.com) was founded by Jayakrishna Ambati, M.D. and Paul Ashton, Ph.D., in 2016 to develop therapies for prevalent, degenerative diseases. The company combines scientific excellence with proven development expertise and works to develop products via a mixture of licensing agreements and internal development. The company currently has collaboration agreements with Boehringer Ingelheim and the Bill & Melinda Gates Foundation.

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