



## Press Release

### **Gifu University and Astellas establish a Research Course on Phage Biologics, aimed at creating new treatments for bacterial infections**

**TOKYO , March 18, 2020** - Gifu University (President: Hisataka Moriwaki M.D., Ph.D.) and Astellas Pharma Inc. (TSE: 4503, President and CEO: Kenji Yasukawa, Ph.D., “Astellas”) today announced that the parties have established, inside Gifu University Graduate School of Medicine, a joint research course entitled, “Phage Biologics Research Course” (Lead professor: Hiroki Nagai, Ph.D., Professor of Microbiology, Gifu University Graduate School of Medicine; Lead researcher: Hiroki Ando, Ph.D., Principal Investigator<sup>\*1</sup> of Astellas is on loan to Gifu University as project associate professor). In the Phage Biologics Research Course, Gifu University and Astellas will conduct a joint study on bacterial infection treatment by using engineered bacteriophages<sup>\*2</sup>. The course will be retained for a term of three years from March 2020.

Phage therapy is known for being a treatment that aims to selectively eliminate bacteria from the living body by using bactericidal actions, the primary properties of a virus, and taking advantage of the characteristic of viruses in the natural world that specifically infect target bacteria. Due to the advancement of genetic engineering technology, progress is being made in recent years in the research of enhancing the usefulness and safety of engineered bacteriophage. It is attracting attention as the next-generation phage therapy technology. This technology is expected to be useful not only for the treatment of common bacterial infections, but also for the new treatment of difficult-to-treat bacterial infections and for solving the problem of antimicrobial resistance (AMR)<sup>\*3</sup>, a serious global threat to public health.

Gifu University Graduate School of Medicine has been engaged for some time in the research of engineered bacteriophages applicable to next-generation phage therapy. Through this joint research, while making use of the strength of academia in which knowledge gained from clinical practice can be inputted, Gifu University will work to create engineered bacteriophages against multiple target bacteria through an industry-academia collaboration with Astellas.

The VISION of Astellas is “On the forefront of healthcare change, turning innovative science into value for patients.” Along with in-house R&D, collaborations and partnerships play an important role in realizing this VISION. Astellas actively explores

and evaluates collaboration opportunities that match the company's innovations and business strategies. The establishing of this joint research course is part of this effort.

Through this joint research, Gifu University and Astellas will take on the challenge of creating multiple lead programs in the field of bacterial infection treatment that uses engineered bacteriophages, to further bring benefit to patients.

**\*1 Principal Investigator (PI):** One of the research profession of Astellas.

**\*2 Engineered bacteriophage:** A bacteriophage, which means a substance that eats bacteria, is a virus that exists widely in the natural world. It is known to attack the host bacteria, but is harmless to animals and the human body. An engineered bacteriophage is an artificially-created bacteriophage that has specific functions.

**\*3 AMR:Antimicrobial Resistance:** The development of resistance to a specific drug, making the drug ineffective, or not work well.

#### **About Astellas**

Astellas Pharma Inc., based in Tokyo, Japan, is a company dedicated to improving the health of people around the world through the provision of innovative and reliable pharmaceutical products. For more information, please visit our website at <https://www.astellas.com/en>

#### **Astellas Cautionary Notes**

In this press release, statements made with respect to current plans, estimates, strategies and beliefs and other statements that are not historical facts are forward-looking statements about the future performance of Astellas. These statements are based on management's current assumptions and beliefs in light of the information currently available to it and involve known and unknown risks and uncertainties. A number of factors could cause actual results to differ materially from those discussed in the forward-looking statements. Such factors include, but are not limited to: (i) changes in general economic conditions and in laws and regulations, relating to pharmaceutical markets, (ii) currency exchange rate fluctuations, (iii) delays in new product launches, (iv) the inability of Astellas to market existing and new products effectively, (v) the inability of Astellas to continue to effectively research and develop products accepted by customers in highly competitive markets, and (vi) infringements of Astellas' intellectual property rights by third parties.

Information about pharmaceutical products (including products currently in development) which is included in this press release is not intended to constitute an advertisement or medical advice.

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