

October 24, 2019

## Presentation on the low adsorption of COP for medical use at the conferences

Zeon Corporation (president: Kimiaki Tanaka) gave a presentation on the stability of pre-filled syringes in delivering biologics at this year's Universe of Pre-filled Syringes and Injection Devices conference, hosted by the Parenteral Drug Association and held in Gothenburg, Sweden on October 22 and 23.

The presentation featured research results demonstrating that the use of syringes made of Zeon's cyclo olefin polymers (COPs; trade names: ZEONEX<sup>®</sup>, ZEONOR<sup>®</sup>) can limit adsorption and aggregation of biologic solutions.

### Overview of Research

Biologics including antibody drugs have recently shown rapid growth in the pharmaceutical market. Concerns, however, have been raised over storing biologics in glass syringes, as this could affect proteins, which are the major components of biologic solutions, and could lead to the formation of aggregates. As for COPs, they cause less adsorption and aggregation of proteins compared to glass and are regarded as a promising material suitable for storing biologics, including pre-filled syringes\*.



Zeon has been conducting joint research with U-Medico Inc. and Dr. Susumu Uchiyama of Osaka University on the adsorption and aggregation of protein-based solutions stored in pre-filled syringes made of COP.

To date, we have used the protein-based solutions Adalimumab (Humira<sup>®</sup>), Etanercept (Enbrel<sup>®</sup>), and Infliximab (Remicade<sup>®</sup>) to compare the state of adsorption and aggregation on the surface of a barrel between pre-filled syringes made of conventional materials and those made of COP. Our report on the results confirmed the low-adsorption, low-aggregation characteristics of COPs. (Full text of report:

<https://doi.org/10.1016/j.xphs.2018.01.021>)

In our most recent research involving the use of Abatacept (Orencia<sup>®</sup>), another protein-based solution, to compare the state of the use of glass syringes for adsorption and aggregation on the surface of the syringe barrel, we found that the volume of adsorption and aggregation was lower when filling Orencia<sup>®</sup> in a COP pre-filled syringe than when filling it in syringes made of conventional materials. In our latest presentation, we also reported on the state of aggregation.

Moreover, in May this year, Zeon gave a presentation on this subject at a seminar hosted by the Office of Biotechnology Products (OBP) under the U.S. Food and Drug Administration.

[http://www.zeon.co.jp/press\\_e/190712.html](http://www.zeon.co.jp/press_e/190712.html))

Zeon will continue to proactively deliver solutions grounded in its unique technologies while contributing to the development of medicine.

\*Syringes pre-filled with medication to eliminate the risk of infection and prevent errors in the volume of medication to be administered.