P R E S S   R E L E A S E

(Not to be released before 13 October 12:30 pm)

Biochemical Analytics Prize awarded to scientists for the development of a high-resolution lipid profile and for the discovery of the causes of vaccine-induced cerebral vein thrombosis

This year, the Biochemical Analytics Prize, endowed with 50,000 euros, will be awarded to biochemistry professor, Dr Kai Simons and analytical chemist, Dr Andrej Shevchenko, as well as to Professor Andreas Greinacher, a transfusion medicine physician.

Mannheim, 12 October 2022 - Fats (lipids) play a vital role in the human organism but not enough research has been conducted on them up until now. Lipids include cholesterol and its esters, triglycerides, fat-soluble vitamins, hormones and even waxes. Alongside DNA and proteins, lipids comprise an important substance class of their own. The totality of the lipids in the human body, the lipidome, includes over 100,000 different lipids. Of these molecules, more than 2,000 have already been linked to human health and disease. They play an important role in metabolic regulation - at a cellular level on up to energy management and communication.

Kai Simons and Andrej Shevchenko worked together to develop the world's first quantitative shotgun lipidomics platform. The method uses high-resolution mass spectrometry to conduct highly sensitive, absolute quantitative analyses of lipid molecules in small amounts of cells, tissues and body fluids. The quantification of several thousand different lipid molecules is done simultaneously using one sample. The individual fatty acid components of the lipids are broken down molecule by molecule to create a molecular signature of the lipidome. Since shotgun lipidomics is also suited for a high throughput, the method can be used in molecular diagnostics, where groundbreaking observations have already been made, such as for metabolic disorders.

Professor Andreas Greinacher and his research team discovered the cause of "VITT syndrome - vaccine-induced immunogenic thrombotic thrombocytopenia (VITT)", which occurs after a vaccination with adenovirus vector-based COVID-19 vaccines. The investigations, conducted by the team from Greifswald, show that a blood platelet protein, platelet factor 4 (PF4), interacts with components of the vaccine. The altered PF4 is recognised by the immune system's antibody-forming cells which begin to produce antibodies against the body's own protein. These antibodies activate blood cells. The result was that, in rare cases, clots formed in the blood of vaccinated people which triggered cerebral venous sinus thrombosis. The activation of the clot is mediated by a specific receptor, the Fcg receptor IIA, which can be blocked by administering intravenous immunoglobulins available in every hospital. The discovery of "VITT syndrome", the development of a detection method, the clarification of the mechanism, and the identification of effective treatment drugs – all within a matter of weeks – meant that severe complication rates could be reduced by more than 90 per cent.

Parallel to publishing the research result, the scientists also presented the positive medical news that the antibodies disappear within a few months. Those affected can safely be vaccinated a second time without the antibodies forming again and without having to fear a dangerous cerebral vein thrombosis.

The research finding is particularly relevant for countries that only have the AstraZeneca vaccine.

Professor Harald Renz, President of the German Society for Clinical Chemistry and Laboratory Medicine: "We are once again pleased to be able to honour three outstanding scientists this year from around the world, who absolutely fulfil the award's demanding criteria. Their scientific contribution is setting the standard for chemical analysis and is helping to improve the healthcare of millions of people."

Chief Sales & Development Officer of SARSTEDT AG & Co. KG, Rainer Schuster: "SARSTEDT has been supporting scientific excellence through the Biomedical Analytics Prize for many years. As a global company offering medical and scientific product solutions, we would like to acknowledge successful research activities, the results of which contribute to improving healthcare and medical diagnostics. We are very pleased to sponsor this €50,000 research award and congratulate this year's winners on their exceptional achievements.

Half of the prize money will go to Professor Andreas Greinacher and half to Professor Kai Simons and Dr Andrej Shevchenko.

About the Biochemical Analytics Prize
The Biochemical Analytics Prize has been conferred every two years since 1970 by the German Society for Clinical Chemistry and Laboratory Medicine e. V. (DGKL) for outstanding scientific achievements in the field of biochemical and molecular analytics. The award recognises methodological advances in the field of biochemical and molecular analytics as well as important, new scientific knowledge that has been gained - using modern analytical methods - in the field of biological sciences, especially clinical chemistry and clinical biochemistry.

The award is sponsored by the globally active company SARSTEDT Group.

Outstanding personalities such as Yuk-Ming Dennis Lo, Hong Kong SAR (2019), Nobel Laureate Emmanuelle Charpentier, Berlin (2017), Björn Dahlbäck, Lund (2015), Franz-Ulrich Hartl, Martinsried (2013) and Nobel Laureate Svante Pääbo, Leipzig (2011) have already been honoured with this award.

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