

CRISPR-Cas

From Evolution to Revolution

Date: Thursday, March 8, 2018, 2.30 p.m. – 5.45 p.m.

Venue: Aula Wageningen University & Research, Generaal Foulkesweg 1, 6703 BG Wageningen

Hosts: John van der Oost and Willem M. de Vos, Laboratory of Microbiology, Wageningen University

Ten years ago major discoveries at the level of comparative genomics and molecular microbiology have demonstrated that CRISPR-Cas is a heritable adaptive immune system in bacteria and archaea. Initial biochemical analysis revealed that the mechanism of CRISPR-Cas systems is generally based on RNA-guided DNA interference. Moreover, CRISPR guides have successfully been designed to alter their specificity, meaning that any DNA sequence can be targeted by CRISPR-associated (Cas) nucleases. These key findings have initiated a revolution in both fundamental and applied research. Basic discoveries include the exploration of the natural diversity of CRISPR-Cas systems and the characterization of structure-function relations of CRISPR-associated proteins and RNA guides. Repurposing of the Cas proteins has led to the spectacular development of a range of applications in biotechnology and medicine. In this Symposium, four speakers will address different aspects of the CRISPR-Cas research: evolution, mechanism, genome editing, and ethics.

Programme

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| 2.00 p.m. | Registration |
| 2.30 p.m. | John van der Oost, Professor of Microbiology & Biochemistry, Wageningen University & Research – <i>Opening and introduction</i> |
| 2.40 p.m. | Keynote speaker, Eugene Koonin, Professor of Evolutionary and Computational Biology, National Center for Biotechnology Information and National Institutes of Health, Bethesda, United States – <i>On the origin of CRISPR-Cas</i> |
| 3.20 p.m. | Questions |
| 3.25 p.m. | John van der Oost, Professor of Microbiology & Biochemistry, Wageningen University & Research – <i>CRISPR-Cas – from RNA to R&D</i> |
| 3.50 p.m. | Questions |
| 3.55 p.m. | Break |
| 4.25 p.m. | Niels Geijsen, Professor of Regenerative Medicine, Hubrecht Institute KNAW, Utrecht – <i>Gene editing with a pinch of salt</i> |
| 4.50 p.m. | Questions |
| 4.55 p.m. | Annelien Bredenoord, Professor of Ethics of Biomedical Innovation, University Medical Center Utrecht – <i>Why we should (not) modify the human germline ...</i> |
| 5.20 p.m. | Questions |
| 5.25 p.m. | Discussion with Chair and Faculty |
| 5.45-7.00 p.m. | Drinks, reception |