

Who is John van der Oost?

- 1958 born on 22 July in Zevenhuizen (province of South Holland)
- 1984 graduates in microbiology and biochemistry at VU University Amsterdam
- 1989 receives his doctorate at VU University Amsterdam for his work on hydrogenase activity in cyanobacteria
- 1989 postdoc at the University of Helsinki, Finland
- 1990 EMBO fellow at the European Molecular Biology Laboratory (EMBL) in Heidelberg, Germany
- 1992 KNAW fellow at the VU University Amsterdam
- 1995 group leader of bacterial genetics, Laboratory for Microbiology, Wageningen University
- 2005 receives Vici grant from NWO
- 2005 appointed professor of microbiology at Wageningen University & Research
- 2008 publishes ground-breaking article in *Science* about the function of anti-viral defence with bacteria by means of CRISPR RNAs
- 2009 visiting professor at Montana State University in Bozeman, US
- 2010 receives a TOP grant from NWO
- 2011 is one of the initiators of the Microcanon, a book and website to increase awareness of microbiology (an English version called *Mighty Microbes* was published in 2017)
- 2013 named member of the European Molecular Biology Organization (EMBO)
- 2014 publishes article in *Nature* about DNA-guided DNA-interference in bacteria
- 2015 receives a second TOP grant from NWO
- 2015 describes a second important genome editing system, CRISPR Cpf1, in *Cell* (2016), *Science* (2016) and *Nature Biotechnology* (2017)
- 2016 named as one of the 'Heroes of CRISPR' in high-profile article in *Cell*
- 2017 is one of the successful applicants for Gravitation funding
- 2017 elected a member of the Royal Netherlands Academy of Arts and Sciences (KNAW)

Credits: NWO

Laudation of John van der Oost – Spinoza laureate

John van der Oost, professor of Microbiology at Wageningen University & Research, is internationally regarded as one of the founders of the pioneering CRISPR-Cas technique. This genetic technique enables scientists to change the DNA of bacteria, plants and animals – and thus human beings as well – in a way that is simpler, faster and more accurate than other genome editing techniques. CRISPR-Cas allows you to alter, add or remove genes in a highly specific manner. That opens the door to a huge range of revolutionary applications, from unravelling disease mechanisms to producing new medicines, and improving plant varieties to curing genetic diseases in humans.

Experts describe CRISPR-Cas as a major revolution in the life sciences. The technique only started to gain momentum a few years ago. The fundamental discoveries made by Van der Oost's research group have been indispensable in that respect. Van der Oost discovered how the CRISPR-Cas system contributes to the bacterial anti-viral defence mechanism. He identified various enzymes and molecular signalling pathways that make this defence possible. Thanks to this knowledge, scientists worldwide have succeeded in adapting and applying the CRISPR-Cas9 system to other organisms relatively easily. In addition, Van der Oost discovered a second, comparable mechanism, CRISPR-Cpf1, which works even more efficiently in some areas than CRISPR-Cas9. For example, this new technique enables you to edit multiple genes simultaneously.

Van der Oost has led the Bacterial Genetics group of the Wageningen Laboratory for Microbiology since 1995. In 2005 he became a professor there; since then he has supervised almost 50 PhD students and postdocs. He has an impressive list of scientific publications to his name that excel in quality. Of his 272 publications, 26 have been cited more than 100 times, with one article in *Nature* standing out for having more than 1,300 citations. He has also published influential studies in journals such as *Science*, *Cell* and *Nature Biotechnology*.

Van der Oost has managed to secure important research grants through the years, which has made it possible for his group to continue its work. They include a Vici and two TOP grants from NWO. He sits on various research councils and editorial boards of scientific journals. He was elected a member of KNAW and of EMBO, a prestigious international organisation of academics working in the life sciences.

In addition, Van der Oost makes a deliberate effort to draw attention to his field among a wider audience. He is one of the initiators of the Microcanon, a book and website that make the 50 most important concepts in microbiology accessible. Every year, he engages in discussions with pupils and teachers about current topics, and he is an advisor to the Micropia exhibition at Artis. Interviews with him have appeared in daily newspapers such as *NRC* and *Volkskrant*, trade journals such as *Bionieuws* and *C2W*, and magazines such as *Kijk* and *Quest*. Van der Oost also appears regularly on radio and TV, in various science cafés and during events such as 'Naturalis after Dark'.