

NOMAD Bioscience Published Milestone Research Paper Describing its Salmocin Product Candidates for Control of *Salmonella*

March 2018

NOMAD Bioscience announces the publication in the Scientific Reports (Schneider et al. (2018) Sci. Reports **8**, article number 4078; <http://www.nature.com/articles/s41598-018-22465-9>) a research paper describing broad and efficient control of major foodborne pathogenic strains of *Salmonella enterica* by plant-produced antibacterial proteins salmocins.

Pathogenic strains of *Salmonella enterica* contaminating food products are a major cause of bacterial enteric infections in USA, Europe and worldwide. Currently, other than thermal inactivation, there are no effective methods to control pathogenic bacteria in food chain. NOMAD scientists investigated salmocins, putative non-antibiotic antimicrobial proteins produced by certain *Salmonella* strains and active against other strains of the species, as potential pathogen control agents. The results published in Scientific Reports, a Nature group journal, demonstrate that the cloned salmocins are expressed at very high yields in plants, are fully functional and identical to bacterially produced molecules. It is shown that single salmocins SalE1a or SalE1b, applied at low concentrations, are highly and broadly active against all 109 tested major pathogenic *Salmonella* strains causing outbreaks. Salmocins are also up to 1000 times more active against bacteria than their analogs colicins described in our previous publication (Schulz et al. (2015) PNAS **112**, E5454). Plant-produced colicins are being proposed as inexpensive food additives for a broad control of pathogenic *Salmonella* bacteria in food products (in particular in poultry and fish) that can be promptly approved in USA under existing GRAS regulatory approval process. Salmocins also hold promise as efficient alternatives to antibiotics. Scientists at Nomad Bioscience and its subsidiary UAB Nomads earlier described other antibacterial proteins, colicins (Schulz et al. (2015) PNAS **112**, E5454) and pyocins (Paškevičius et al. (2017) PLoS One 12(10), e0185782) as potentially promising antibiotic alternatives for control of multidrug resistant pathogens.

About NOMAD Bioscience GmbH. Nomad Bioscience GmbH is a plant biotechnology company developing transient expression systems with application to a broad range of agricultural and pharmaceutical biotechnology products. Corporate offices are headquartered in Munich, Germany and the Company's Research division is located in Halle,

Germany. NOMAD Bioscience GmbH has two subsidiary companies: Nambawan Biotech GmbH (Halle, Germany) and UAB Nomads (Vilnius, Lithuania).