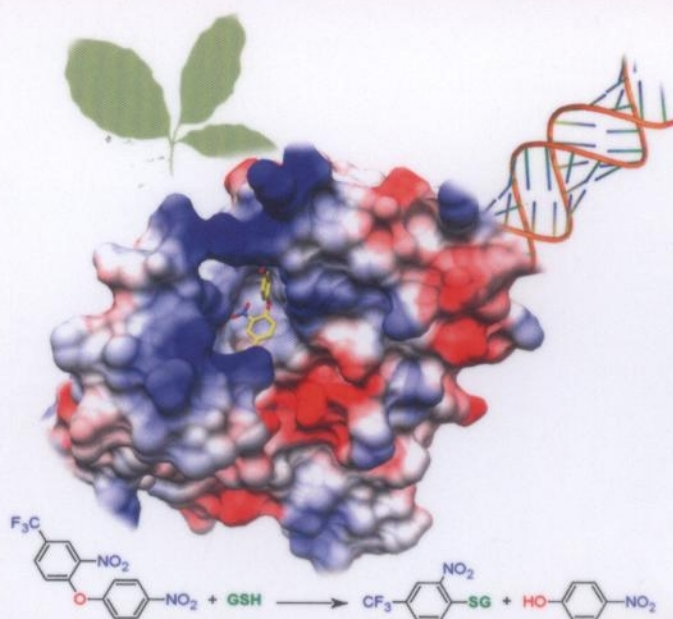


Jan van der Meer & Greg N Stephanopoulos, Editors



**April 2015**

**Food biotechnology**

Edited by Michiel Kleerebezem and Christophe Lacroix

**Plant biotechnology**

Edited by Inge Broer and George N Skaracis

**June 2015** Environmental biotechnology • Energy biotechnology

**August 2015** Systems biology • Nanobiotechnology

**October 2015** Chemical biotechnology • Pharmaceutical biotechnology

**December 2015** Pathway Engineering

**February 2016** Food and Plant Biotechnology



## CONTENTS

Abstracted/indexed in: BIOSIS, CAB Abstracts International, CAB Health, Chemical Abstracts, EMBASE, Index Medicus, Medline. Also covered in the abstract and citation database SCOPUS®. Full text available on ScienceDirect®

- v **Michiel Kleerebezem and Christophe Lacroix**  
Editorial overview: Food biotechnology: Microbial ecosystem management: strategies to adapt ecosystems to improve performance and health impact

- ix **Inge Broer and George N Skaracis**  
Editorial overview: Plant biotechnology

### Food biotechnology

Edited by Michiel Kleerebezem and Christophe Lacroix

- 1 **Herwig Bachmann, Jack T Pronk, Michiel Kleerebezem and Bas Teusink**  
Evolutionary engineering to enhance starter culture performance in food fermentations
- 8 **Jennifer Mahony and Douwe van Sinderen**  
Novel strategies to prevent or exploit phages in fermentations, insights from phage–host interactions
- 14 **Sahar El Aidy, Bartholomeus van den Bogert and Michiel Kleerebezem**  
The small intestine microbiota, nutritional modulation and relevance for health
- 21 **Patrice D Cani and Matthias Van Hul**  
Novel opportunities for next-generation probiotics targeting metabolic syndrome
- 28 **Ingmar JJ Claes, Cynthia E Vargas García and Sarah Lebeer**  
Novel opportunities for the exploitation of host–microbiome interactions in the intestine
- 35 **Ruth Ann Luna and Jane A Foster**  
Gut brain axis: diet microbiota interactions and implications for modulation of anxiety and depression
- 42 **Robert A Rastall and Glenn R Gibson**  
Recent developments in prebiotics to selectively impact beneficial microbes and promote intestinal health
- 99 **Himanshu Kumar, Seppo Salminen, Hans Verhagen, Ian Rowland, Jim Heimbach, Silvia Bñares, Tony Young, Koji Nomoto and Mélanie Lalonde**  
Novel probiotics and prebiotics: road to the market
- 149 **Christophe Lacroix, Tomas de Wouters and Christophe Chassard**  
Integrated multi-scale strategies to investigate nutritional compounds and their effect on the gut microbiota
- 195 **Joël Doré and Hervé Blottière**  
The influence of diet on the gut microbiota and its consequences for health

### Plant biotechnology

Edited by Inge Broer and George N Skaracis

- 47 **Thorben Sprink, Janina Metje and Frank Hartung**  
Plant genome editing by novel tools: TALEN and other sequence specific nucleases
- 54 **Gemma Farré, Richard M Wyman, Paul Christou, Teresa Capell and Changfu Zhu**  
Knowledge-driven approaches for engineering complex metabolic pathways in plants
- 61 **Kristian K Ullrich, Manuel Hiss and Stefan A Rensing**  
Means to optimize protein expression in transgenic plants
- 68 **Kristi D Snell, Vijay Singh and Stevens M Brumbley**  
Production of novel biopolymers in plants: recent technological advances and future prospects
- 76 **Khaoula Belhaj, Angela Chaparro-Garcia, Sophien Kamoun, Nicola J Patron and Vladimir Nekrasov**  
Editing plant genomes with CRISPR/Cas9
- 85 **Cara L Mortimer, Benjamin Dugdale and James L Dale**  
Updates in inducible transgene expression using viral vectors: from transient to stable expression
- 93 **Eric D Rogers and Philip N Benfey**  
Regulation of plant root system architecture: implications for crop advancement
- 104 **Wilfred Vermerris and Alejandra Abril**  
Enhancing cellulose utilization for fuels and chemicals by genetic modification of plant cell wall architecture
- 113 **Shin Hamamoto, Tomoaki Horie, Felix Hauser, Ulrich Deinlein, Julian I Schroeder and Nobuyuki Uozumi**  
HKT transporters mediate salt stress resistance in plants: from structure and function to the field
- 121 **Martina Blümel, Nadine Dally and Christian Jung**  
Flowering time regulation in crops – what did we learn from Arabidopsis?
- 130 **Peter Langridge and Matthew P Reynolds**  
Genomic tools to assist breeding for drought tolerance
- 136 **Yanxia Zhang, Carolien Ruyter-Spira and Harro J Bouwmeester**  
Engineering the plant rhizosphere
- 143 **James Richard Lloyd and Jens Kossmann**  
Transitory and storage starch metabolism: two sides of the same coin?



- 156 Rainer Fischer, Nikolay Vasilev, Richard M Twyman and Stefan Schillberg**  
 High-value products from plants: the challenges of process optimization
- 163 Markus Sack, Anna Hofbauer, Rainer Fischer and Eva Stoger**  
 The increasing value of plant-made proteins
- 171 Henrik Nausch, Christof Sautter, Inge Broer and Kerstin Schmidt**  
 Public funded field trials with transgenic plants in Europe: a comparison between Germany and Switzerland
- 179 Silvio Salvi and Roberto Tuberosa**  
 The crop QTLome comes of age
- 186 Nikolaos E Labrou, Anastassios C Papageorgiou, Ourania Pavli and Emmanouil Flemetakis**  
 Plant GSTome: structure and functional role in xenome network and plant stress response
- 200 Jerzy Paszkowski**  
 Controlled activation of retrotransposition for plant breeding
- 207 Arne Weiberg, Marschal Bellinger and Hailing Jin**  
 Conversations between kingdoms: small RNAs
- 216 Barney A Geddes, Min-Hyung Ryu, Florence Mus, Amaya Garcia Costas, John W Peters, Christopher A Voigt and Philip Poole**  
 Use of plant colonizing bacteria as chassis for transfer of  $N_2$ -fixation to cereals

**The cover**

The structure of GSTU4-4 bound to fluorodifen.