

Resume

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Professor George Guo-Qiang CHEN received his BSc and PhD from South China University of Technology in 1985 and Graz University of Technology (Austria) in 1989, respectively. He



also conducted research in 1990-1994 as a postdoc at University of Nottingham in UK and University of Alberta in Canada, respectively. He has been focusing his research on microbial materials polyhydroxyalkanoates (PHA) metabolic engineering, synthetic biology and PHA biomaterial application since 1986. After joining Tsinghua University in 1994, he has been actively promoting the microbial Bio- and Material Industries in China. Professor Chen has more than 35 years of R&D experiences on microbial physiology, microbial PHA production and

applications, has published over 400 international peer reviewed papers with over 60,000 citations (H-Index>100) as reported in Google Scholar. With over 50 issued patents and 50 pending patents, Prof. Chen's technologies have been provided to several companies that succeeded in mass production of microbial polyhydroxyalkanoates (PHA). He has received many awards for his contributions to the microbial manufacturing fields. Beginning from 2015, he becomes the Funding Director of the Center for Synthetic and Systems Biology in Tsinghua University. From 2015-2024, he serves as chair Professor of Synthetic Biology, The University of Manchester/UK.

“Next Generation Industrial Biotechnology” based on *Halomonas* spp.

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Polyhydroxyalkanoates (PHA) are a family of environmentally friendly biomaterials synthesized by various bacteria. The diversity of PHA reflected by structures and properties has resulted in various applications, making them a promising alternative of petroleum-based plastics, yet their industrialization is challenged owing to the high production cost and instable product quality. Recently the “Next Generation Industrial Biotechnology” (NGIB) has been developed, namely, a long-lasting, open and continuous, energy-saving fermentation process under artificial intelligent control using extremophilic *Halomonas* spp. grown on low-cost mixed substrates. NGIB overcomes the disadvantages of the current industrial biotechnology (CIB) to reduce the bioproduction cost and process complexity, leading to successful industrial production of PHA and several other small molecular products.