

The Roy L. Whistler International Award in Carbohydrate Chemistry 2022

The International Carbohydrate Organization is delighted to announce that the Roy L. Whistler International Award in Carbohydrate Chemistry for 2022 has been awarded to **Prof. Biao Yu**, Professor at the Shanghai Institute of Organic Chemistry (SIOC), Chinese Academy of Sciences, China.

In 1984, the International Carbohydrate Organization established the Award in honour of Professor Roy L. Whistler, to recognize scientists *'who have made contributions of excellence in carbohydrate chemistry and biochemistry and with promise of continuing significant contributions.'* The Award is recognized with a plaque, US\$15,000 and an invitation to present the opening lecture at the XXX International Carbohydrate Symposium (ICS), which will be held in Brazil, (July 11-15th, 2022)



Prof. Yu receives this award for his pioneering work on the development of innovative and efficient approaches to the chemical synthesis of a wide range of complex naturally occurring glycoconjugates and glycans which possess significant biological activities.

Biao Yu (b. 1967) studied radiochemistry at Peking University (1989) and obtained his PhD degree (1995) in Organic Chemistry from the Shanghai Institute of Organic Chemistry (SIOC), Chinese Academy of Sciences. He completed one year of postdoctoral training at New York University, and was hired as an Assistant Professor and then Professor (1999) at the SIOC.

Professor Yu's research focuses on the chemical synthesis of complex natural glycosides and glycans, the development of glycosylation methods enabling their synthesis, and studies on their biological activity and pharmacological utility. His group has achieved the first total syntheses of a large variety of the structurally unique and biologically interesting natural glycosides and glycans, those include triterpene glycosides, steroid glycosides, flavonoid glycosides, nucleoside antibiotics, angucycline antibiotics, lipid glycosides, phenolic glycosides, and many unusual glycans. In many cases these have resulted in structural revisions to correct the scientific record. To tackle the problems behind the construction of the specific glycosidic linkages, the Yu group invented two glycosylation methods: glycosyl *N*-phenyltrifluoroacetimidates and *ortho*-alkynylbenzoates as donors; with the latter using a Lewis acid or gold(I) complex as the catalyst. These catalytic methods have become two of the most reliable glycosylation methods, and are used widely in the synthesis of glycosidic linkages.

An enduring task of Prof Yu's work is to find therapeutically useful glycosides and glycans and their mechanism of action. He has been working on the structural optimization and practical synthesis of a number of glycosides found in cooperation with biologists, such as the Hoodia glycosides which show promising activities against metabolic disorders. Recently, his group accomplished the synthesis of a 128-

mer glycan corresponding to the O-antigen of *Bacteroides vulgatus*. The synthetic availability of these homogeneous polysaccharides will enable the studies on their immuno-modulation activities.

Prof Yu has published over 280 papers and 20 patents, and has received many honors, including the Humboldt Research Award from the Alexander von Humboldt Foundation and the National Award for Natural Sciences from the Chinese government.

Prof. Amelia Pilar Rauter
President of the International Carbohydrate Organization (ICO)

Prof. M. Carmen Galan
Secretary of the International Carbohydrate Organization (ICO)
Editor-In-Chief of Carbohydrate Research