Mie Ichikawa

Current position: Research Technician, Human Genetics Program, Sanford Children's Health Research Center, Sanford-Burnham Medical Research Institute, La Jolla, California

Education: Bachelor's in Pharmacy, 1984, Kyoritsu College of Pharmacy (Keio University Faculty of Pharmacy), Tokyo, Japan

Nonscientific interests: Yoga and playing with my 2-year-old Welsh Terrier

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I have always been fascinated by unique structures and their metabolism in complex carbohydrates. My fascination ranges from polysaccharides in plants; the cell cycle modulator from *Actinomyces*; biosynthetic pathway in slime mold; nucleotide/nucleoside metabolism; chemical and enzymatic syntheses of probes/inhibitors to study key enzyme reaction mechanisms, all the way to mannose metabolism in patients with a congenital disorder of glycosylation (CDG) to search for a possible treatment.

During my work with Dr. Hudson Freeze at the Sanford-Burnham Medical Research Institute, I have been studying how oligosaccharides are biosynthesized in an extremely complex network of enzymes, found from mold to humans. One of the striking facts is that a deficiency in even one of the enzymes involved in these pathways leads to the rare disease CDG. Dr. Hudson is a pioneer in the CDG field. We learned that a number of patients suffer from this disease and have been working on helping to diagnose the disease correctly, identifying missing enzymes, and trying to develop an effective therapy. We have successfully developed a new method to analyze the previously unknown unique enzyme behavior and have also reconfirmed that a small amount of exogenous mannose is the most effective source of *N*-glycans.

Read Ichikawa's article on page 6751.