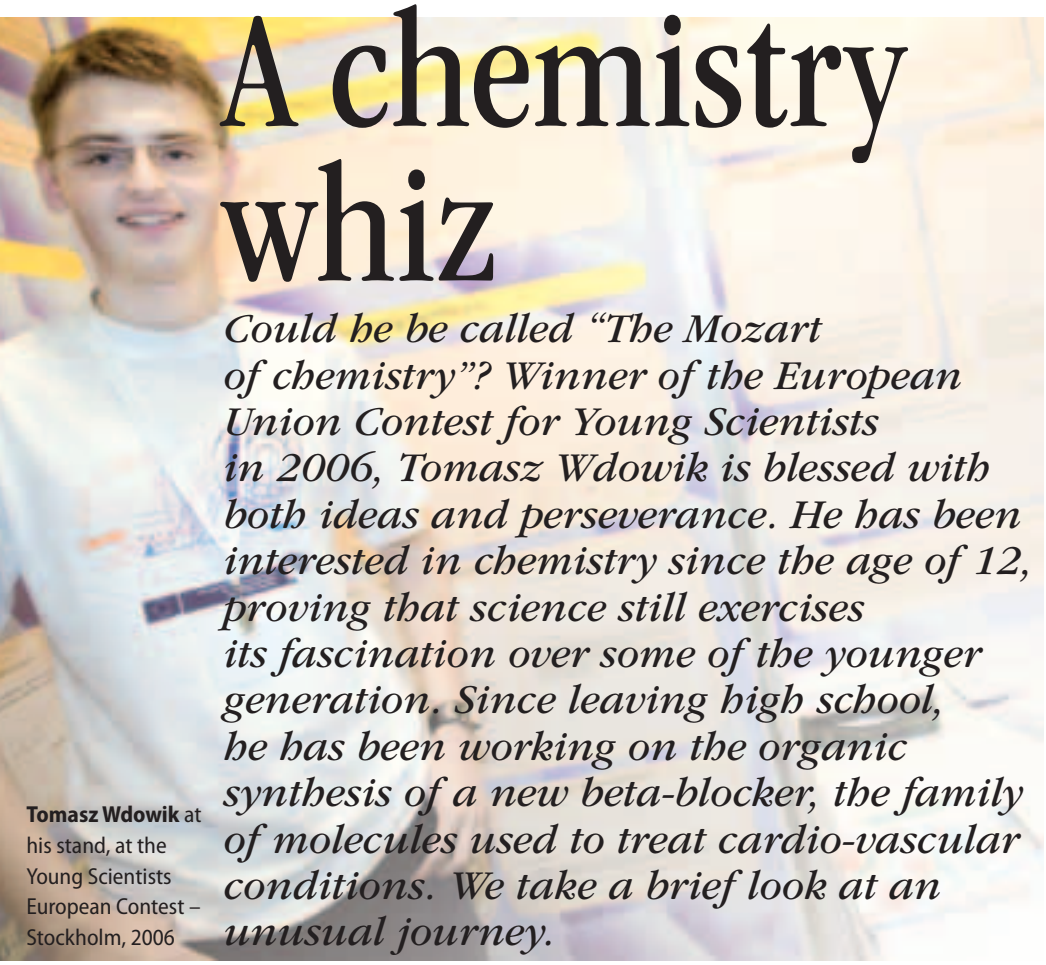

A chemistry whiz

Could he be called "The Mozart of chemistry"? Winner of the European Union Contest for Young Scientists in 2006, Tomasz Wdowik is blessed with both ideas and perseverance. He has been interested in chemistry since the age of 12, proving that science still exercises its fascination over some of the younger generation. Since leaving high school, he has been working on the organic synthesis of a new beta-blocker, the family of molecules used to treat cardio-vascular conditions. We take a brief look at an unusual journey.

Tomasz Wdowik at his stand, at the Young Scientists European Contest – Stockholm, 2006

Tomasz Wdowik has always been interested in science. As a child, it was physics, astronomy and biology that attracted him – until he went to Rzeszòw secondary school (Poland) when he was 12 and discovered chemistry. "I was fascinated by the changes in colour… And then I got hold of a book about organic chemistry and was totally hooked." His teacher, Genowefa Napiórkowska, told some research scientist friends about his curiosity and enthusiasm, with the result that, at the age of 14, Tomasz was given an opportunity to work in one of the labs in the local engineering school under the eye of Grażyna Groszek and to undertake the synthesis of an organic molecule. "I loved it. I would work all during the holidays, sometimes on Sundays... I much prefer chemistry to football, which is just not my cup of tea… That said, I also like classical music and musicology."

The surprises in Stockholm

At the end of his final year in secondary school, Tomasz Wdowik was chosen by the Polish selection board to take part in the 18th European Union Contest for Young Scientists in Stockholm, in September 2006. "My research was not undertaken for that purpose. It was already well under way. It has to do with the complex organic synthesis of a new compound in the family of beta-blockers, molecules that are used in the treatment of diseases and conditions of the cardio-vascular system, such as cardiac arrhythmia, hypertension, migraines, and glaucoma."

The challenge was enormous. In the months before the competition one of the seven stages of the synthesis 'didn't work', bringing the process to a standstill. By altering the conditions of the reaction, trying first one thing and then another, and by searching, Tomasz Wdowik came up with an answer. September thus found him in front of the panel of judges, explaining what he had done in somewhat hesitant English. "Besides the steps of the chemical synthesis itself, the posters on my stand described the biochemical principles of the action of known beta-blockers. That was necessary for an understanding of the structure of this new molecule and the reason for trying to create it. I could see that the judges were interested, but I didn't expect first prize." This recognition gave him new wings. During those days in Stockholm he got to know some of the other competitors, took an interest in their projects and met research scientists from every field. On his return to Poland, Tomasz entered the Warsaw University of Technology.

Molecule by molecule

As well as being a student, Tomasz is also – at the age of 19 – a member of a research group at the Institute of Organic Chemistry of the Polish Academy of Sciences. The group, headed by Jerzy Wicha, works on methods of synthesis of natural products. Its goal is "to achieve something new in chemistry, discover new ways to synthesise certain molecules... Synthesising organic compounds is very difficult. One of the hot spots in this field today is total synthesis – that is, the possibility of building up very complex molecules from very simple ones. Finding the right path is almost an art. I have started on the total synthesis of a natural molecule isolated from a sea sponge. I am still at the trial stage, testing different routes. Everything is still wide open." What about the molecule from the competition? "That's over now. Research scientists from the pharmaceutical industry are investigating its action. When they are finished we will know whether or not that molecule, which has been registered with the Polish Patent Office, is a good beta-blocker."

Alexandre Wajnberg

Young Scientists European Contest
http://ec.europa.eu/research/youngscientists/code/bergen.htm
Jerzy Wicha's group
www.icho.edu.pl/ENG/groups/18/18.htm