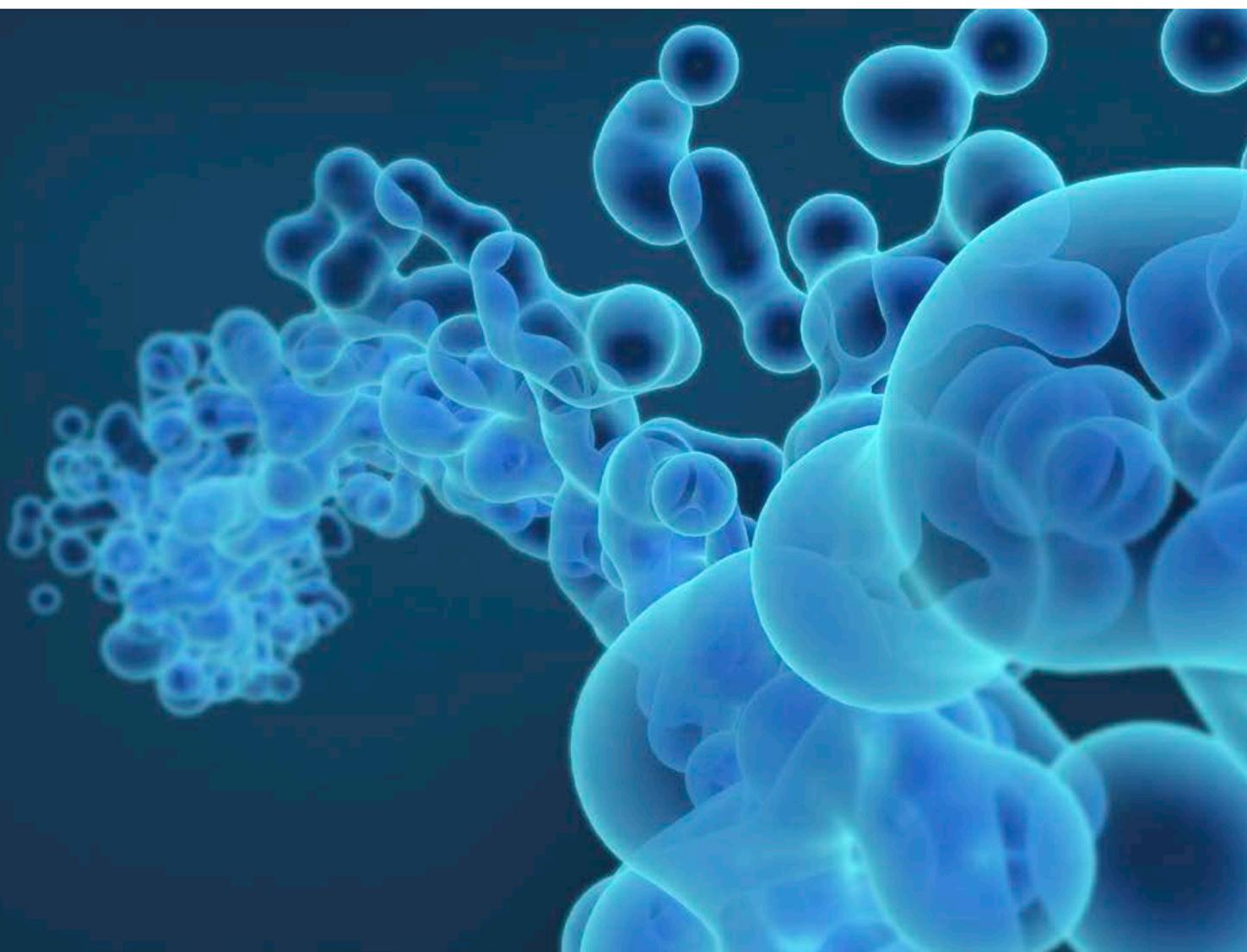


Reaxys®

DRUG DISCOVERY & DEVELOPMENT

Solution Story: Empowering chemical synthesis work

An interview with Dr. Rujian Ma and Dr. Wenzhong Gao of WuXi AppTec



Introduction

WuXi AppTec is a leading global partner for pharmaceutical, biopharmaceutical and medical device development, offering open-access capabilities and technology platforms. Elsevier met with two representatives of the company's Chemistry Services Unit: Dr. Rujian Ma, Vice President of Chemistry, and Dr. Wenzhong Gao, Director of Chemistry. They discuss how Reaxys plays a role in the daily work of over 5,000 chemists at WuXi AppTec.

“Reaxys is an excellent platform to learn what is new in chemistry”

—Dr. Rujian Ma, Vice President of Chemistry, WuXi AppTec



Dr. Rujian Ma, Vice President of Chemistry and Head of Chemistry Services Unit of WuXi AppTec



Dr. Wenzhong Gao, Director of Chemistry, Chemistry Services Unit of WuXi AppTec

Established in December 2000, WuXi AppTec has grown to become a leading global partner for pharmaceutical, biopharmaceutical and medical device development, offering open-access capabilities and technology platforms. The company provides a broad portfolio of efficient and cost-effective services to support the whole R&D process, helping their worldwide customers to shorten the time-to-market and lower the costs of drug and medical device research. With industry-leading capabilities in areas including small molecule R&D and manufacturing, cell and gene therapy R&D, and medical device testing, WuXi AppTec’s platform enables over 3,000 innovative collaborators from more than 30 countries to bring innovative healthcare products to patients.

Elsevier met with two representatives of WuXi AppTec’s Chemistry Services Unit (CSU): Dr. Rujian Ma, Vice President of Chemistry and Head of CSU, and Dr. Wenzhong Gao, Director of Chemistry. The CSU offers a complete spectrum of services for synthetic chemistry, including small molecules, peptides, isotropic labeling chemistry and metabolite synthesis. The offering covers everything from milligram synthesis to kilogram GLP scale-up and includes reagent service and compound management. In this interview, Dr. Ma and Dr. Gao discuss how Reaxys plays a role in the daily work of over 5,000 chemists at WuXi AppTec.

Note: This interview was conducted on December 4, 2017, before Dr. Ma was appointed to the position of Chief Chemist to lead the Chemistry and Technology Department of the Research Science Division at WuXi AppTec.

Challenge

WuXi AppTec is known to be one of the most innovative companies in pharmaceutical development. What role does the CSU play in that innovation?

Dr. Ma: Chemical synthesis is a highly important component in pharmaceutical development. The CSU is responsible for developing innovative chemistry solutions for drug discovery and development.

Dr. Gao: Our main goal is to utilize the WuXi AppTec technology platform to provide faster and better chemistry services for our customers. This relies on the continuous pursuit of scientific excellence and innovation. Many ideas and new practices stem from the persistent endeavors to innovate in our daily work.

What are your personal roles?

Dr. Ma: I would describe my major responsibility as the high-level management of research: thinking at the strategic level rather than the daily operation level. We need to be very aware of the latest technologies in chemistry and consider how to combine that technology with our practices to better fulfill our goals. I also spend a lot of time with the team, guiding them on problem solving and tactical decision-making, especially during challenging projects.

Dr. Gao: I am responsible for internal chemistry training at the CSU. In the past 12 years, my team has accumulated a considerable body of knowledge and experience from our daily work, enabling us to continuously enrich our training materials.

What are the main challenges that you encounter at the CSU?

Dr. Ma: In scientific research, perfection does not exist. There is always room for improvement. For me, the challenge mainly relates to the balance: when designing a good synthetic route, we must always strike the right balance between the effort spent on technical improvement and the cost and delivery timeline. Based on the specific need of each project, we need to adjust our expectation of the “perfect solution” to keep this balance for our customers.

What about challenges related to cheminformatics?

Dr. Gao: Nowadays, the information obtained from the public domain and commercial sources is huge. It is easy to get overwhelmed if one doesn't know how to use the information effectively.

Dr. Ma: Another data-related challenge is cheminformatics integration. As you know, there is a variety of cheminformatics resources available, each with its own focus and corresponding pros and cons. It is challenging to find the best way to utilize all the resources efficiently.

Solution

Does Reaxys help with these challenges?

Dr. Gao: Certainly. Reaxys helps us to keep current on new knowledge and technology in chemistry. For daily research, Reaxys provides high-quality data from peer-reviewed publications and patents. It is straightforward to form a query to get a precise or comprehensive search result from Reaxys. Our scientists always can use these data to find synthetic ideas and formulate practical synthesis routes.

We always tell our synthetic chemists: do not limit yourself to the synthetic route straight from the literature. Try to leverage research tools like Reaxys to broaden your horizons. Analyzing and tracing back the related information from searching, sometimes inspires unexpected ideas, which leads to better solutions.

Dr. Ma: In addition, through the close collaboration between WuXi AppTec and Elsevier, our catalog compound database is available through Reaxys — not just to our internal researchers, but also to all public users!

Business Impact

Why is Reaxys important to you and other CSU chemists?

Dr. Ma: For me, Reaxys is an excellent platform to learn what is new in chemistry. In addition to the excellent support for accurate data retrieval, Reaxys helps me to broaden the horizons of my knowledge.

Furthermore, Reaxys provides our researchers with rich data and comprehensive perspectives for problem solving, and thus ensures that our synthetic work is based on better solutions.

Dr. Gao: We use Reaxys to verify our actual design. It also helps us to develop new ideas. The significance of Reaxys is that it provides a variety of possible solutions in a comprehensive way.

Reaxys

Reaxys helps chemical businesses ensure that manufacturing processes are optimized for quality and safety standards by providing chemists working in production the shortest path to data for understanding synthetic routes, manufacturing yield expectations and manufacturing by-products.

For more information about Reaxys,
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