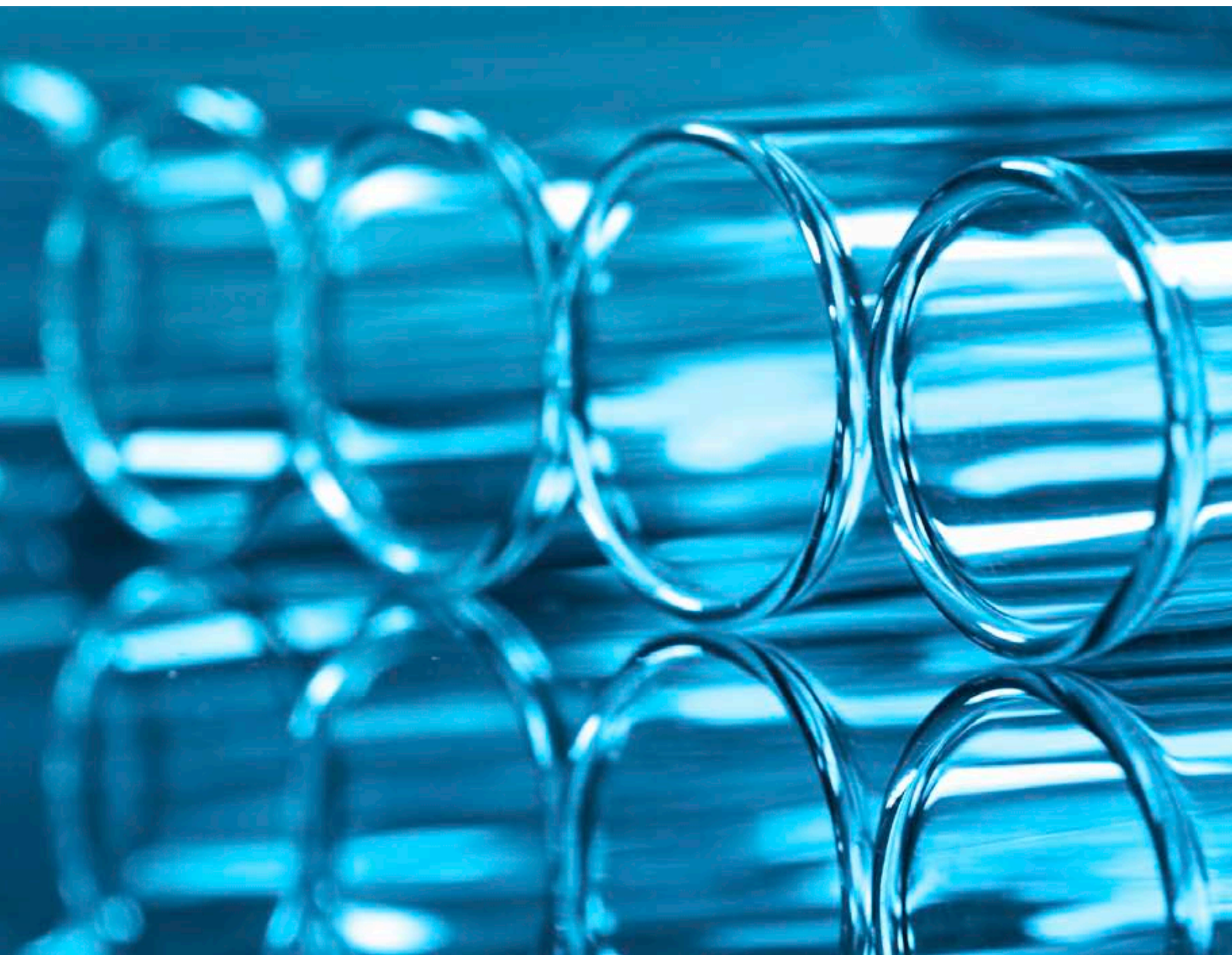


Reaxys®

DRUG DISCOVERY & DEVELOPMENT

Solution Story: Supporting students and researchers

How the precise delivery of answers by Reaxys supports educational and research goals at Gifu Pharmaceutical University



Summary

At Gifu Pharmaceutical University, Professor Hironao Sajiki, PhD, finds Reaxys useful for both research and teaching. In this interview, he discusses how the solution's precise delivery of answers supports his educational and research goals.

“We find the Reaxys training also helps to get students more interested in organic chemistry because they can see more of what is possible in this field.”

—Professor Hironao Sajiki, PhD, Gifu Pharmaceutical University



Professor Hironao Sajiki, PhD, is the head of the Laboratory of Organic Chemistry in the Faculty of Pharmaceutical Science at Gifu Pharmaceutical University and President of the Japanese Society for Process Chemistry (JSPC).

Gifu Pharmaceutical University is known for both a high standard of education and high-quality research in the chemical, environmental, pharmaceutical and life sciences. By incorporating idea design courses into science and technology programs and promoting general education as the strong foundation on which specialization is built, the university produces graduates with the skills to innovate and work in cross-disciplinary projects and functions as an advanced research hub supporting industry.

Professor Hironao Sajiki, PhD, an active research chemist and educator at the Faculty of Pharmaceutical Science at Gifu Pharmaceutical University, recently met with Elsevier to discuss his work, especially how he works with students to ensure that they can solve the challenges of modern chemistry and pharmacology.

Challenge

May we ask what classes you teach?

I teach several undergraduate and post-graduate classes. With undergrads, I have courses titled Medicinal Chemistry and Hazardous Chemicals, a seminar titled Comprehensive Pharmacy, and two training classes: Basic Pharmacy and Organic Chemistry. With post-graduates, I teach courses titled Process Chemistry of Pharmaceuticals, Functional Organic Chemistry, Advanced Medicinal Chemistry, Theory of New Drugs and Studies of Drug Development.

You also have your own research team. What is your role in collaborations with industry?

We collaborate with various companies across a whole range of sectors, including the pharmaceutical, cosmetics, fine chemical, agrochemical, petrochemicals, energy and metal industries.

Our focus tends to be finding the best synthesis routes for our partners' chosen compounds. This could focus on developing novel catalysts, finding alternative routes with less by-products or lower energy requirements, and investigating routes that will not infringe on patent processes. We have developed proprietary technologies to synthesize deuterium compounds.

What are the main challenges related to finding data in the literature for this research?

The main challenge always relates to the amount of literature and data that is available. It is time-consuming if one must read multiple papers to find an answer. We always prefer research methods that get us to the answers faster: specific reaction and property searches such as can be done in Reaxys are very useful to us.

Solution

Is Reaxys your main chemistry research solution?

We do have subscriptions to other research solutions, but there are some things that Reaxys simply does better. Reaxys is the only solution that has a dedicated isotope search function. It is much easier to search for reaction data with Reaxys, and it contains more experimental physicochemical data (as opposed to calculated data). Finally, while other solutions also enable searches for physicochemical and spectral data, only Reaxys shows them in tables with information about how they are described in the source publication.

Do you teach your students how to use research solutions like Reaxys?

We do not have any official Reaxys-focused classes taught by our faculty, but we do think it is very important to have regular Elsevier-run training sessions. They do more than just help students to understand how Reaxys works. We find the Reaxys training also helps to get students more interested in chemistry because they can see more of what is possible in this science.

When do you think it is important to introduce students to such research solutions?

We want our students to realize the value of Reaxys for background data for writing articles. For example, NMR, physicochemical data and synthesis routes for known compounds could be required with proper citations in the article. Using Reaxys quickly retrieves the data points and supports their correct use in published articles.

We also like students to understand how to explore the science behind an unexpected reaction. For example, we want them to see that if $A+B = C$ is expected but $A+B = D$ is observed, this is not necessarily a sign that the experiment is a complete failure. We show them that they can find answers, for example, by turning to Reaxys to see if both are known reactions. We also explore compound D to see if it is functional.

In addition to above, we want students to know how to perform scaffold analyses in Reaxys as it has a lot of pharmacological and toxicity data.

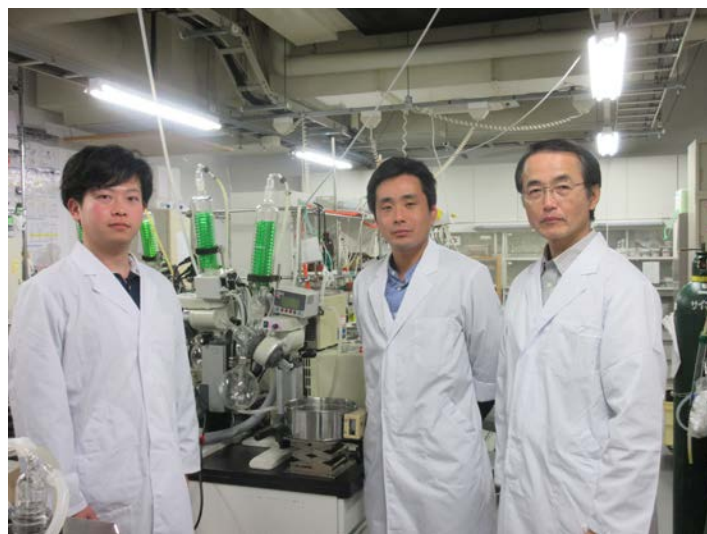
Business impact

Are you satisfied with Reaxys?

Yes. Reaxys is a useful research solution and a good tool for educating the next generation of chemists and pharmacologists. Reaxys helps us find answers quickly and encourages students to be more interested in chemistry. With other solutions, we must read more source publications to find and understand the answers that Reaxys delivers directly.

What would you most like to see in the next generation of research solutions?

I think every chemist and pharmacologist dreams of software to predict chemical structures based only on chemical shift input!



Professor Sajiki, PhD, with two of his team: Mr. Tomochiro Ichikawa and Dr. Yoshinari Sawama.

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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