The Challenge to Integrate Academic Research in Japan into Global R&D in Pharmaceutical Companies

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The impact factor of Drug Metabolism and Pharmacokinetics (DMPK), the official journal of the Japanese Society for the Study of Xenobiotics (JSSX), has been increasing in recent years, reaching 2.544 in 2009 and 2.558 in 2010. This reflects increasing international interest in DMPK research in Japan and the availability of such work publicized in English. In order to enhance this global appeal, JSSX has recently requested that all presentations at its annual meeting should be given in English, not in Japanese. This is important, as JSSX scientific meetings include both Japanese academics with access to unique technologies and international pharmaceutical industry researchers. The latter scientists have an important role to play as intermediaries between academics and senior management of pharmaceutical companies. In other words, the role of scientists in domestic and foreign company research institutes in Japan should be not only to conduct routine experimental studies for new drug application (NDA), but also to seek out innovative technology developed in Japan that could be usefully applied for new drug development.

I worked in the R&D institute in Japan of a foreign pharmaceutical company for 14 years, until 2010. One of my tasks then was to promote the development and adoption of novel Japanese technology by introducing Japanese professors to foreign colleagues based at headquarters and coordinating collaboration among Japanese academic scientists via our Japanese institute. International academic conferences, such as the JSSX, ISSX and MDO conferences, have provided great opportunities to introduce unique Japanese technology to foreign researchers and staff based at corporate headquarters. Although the needs of each company are different, depending on their development strategy, there have been many examples of successful technology transfer. In my own case, the company I worked for was very interested in Japanese academic research on drug transporters and biomarkers because of their potential usefulness in the drug development process.

Our Japanese R&D institute was able to establish novel in-house tools introduced from several Japanese universities, and we utilized them to profile the transporter substrate profiles of various drug candidates under development. Another example has been cooperation with Japanese academia in the field of quantitative protein analysis by LC-MS/MS. Technology to quantify proteins using mass spectrometry is of great value for drug development, including high-throughput screening. This technology also has potential in the field of biomarker analysis, including identification of novel peptide or protein markers with diagnostic or therapeutic potential. The goal of these collaborations was to establish the technology in-house at company drug development sites.

Unfortunately, the number of pharmaceutical company research institutes located in Japan has recently been decreasing owing to changes in global development strategies. Global harmonization of the Common Technical Document (CTD) has accelerated both the transfer of research centers in Japan to other less expensive Asian counties and the centralization of R & D at large central research centers. I believe that this trend may be counteracted by supporting early collaboration with researchers of companies with headquarters based outside of Japan to introduce cutting-edge technology in various disciplines through cooperation and open discussions at the personal level. The fact that Japanese scientific attainment in the field of DMPK is world-leading provides a unique opportunity for company scientists in Japan, in particular young scientists, not only at research institutes, but also those working in R&D, to capitalize on the work of academics in Japan. They have the opportunity to introduce novel techniques into the global R&D development process, thereby demonstrating the unique advantages of Japanese institutes and R&D functions to companies outside of Japan.

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