

# Shionogi's Business Activities

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## Pharmaceutical Research

In its drug discovery research, Shionogi is seeking to realize high-productivity and continuously generate new drugs that meet global standards by means including the application of industry-leading advanced technologies and proactive arrangement of alliances.

### Performance in Implementing the Second Medium-Term Management Plan

The Pharmaceutical Research Division moved ahead with respect to second medium-term management plan targets, including the following.

- Augmenting Shionogi's array of drugs for treating contagious diseases and positioning drugs for treating pain and metabolic syndrome as new strategic drug discovery domains
- Producing at least five drug candidates that can attain Phase II or higher level trials by fiscal 2009
- Proactively leveraging outside resources to increase the efficiency and success rate of research programs

As a result, the division succeeded in sustaining an output of four new drug development candidates in each of the past four years and made smooth progress in forming a pipeline of in-house discovered drug development candidates in Shionogi's three strategically emphasized domains. The division has already met the goal of producing at least five drug candidates that can attain Phase II or higher level trials by fiscal 2009, and it has numerous drug candidates with the potential for reaching Phase II trials before the end of fiscal 2009. Particularly in fiscal 2008, the division brought an agent for atopic dermatitis and two other products to the first trial in human (FTIH) stage, and four new drug candidates were discovered—including one for treating severe infections, one for treating HIV infections, one for treating metabolic syndrome, and one for

treating diabetes. The division's ability to create such a rich group of drug candidates in a short period of time reflects its ability to perspicaciously anticipate unmet therapeutic needs of the future, tighten the focus of its principal research programs on strategically emphasized disease domains, and undertake thorough progress management of drug discovery processes. They also stem from the division's efforts to promote global cooperative research programs and otherwise proactively make use of outside resources.

### Finding Drug Discovery Seeds

Exploratory research aimed at finding outstanding drug discovery seeds is an indispensable requirement for sustaining future growth. Regarding this kind of exploratory research, also, Shionogi is actively engaged in cooperative research programs with outside research institutions. In May 2008, the Company opened its own research facility on the campus of Hokkaido University, called the Shionogi Innovation Center for Drug Discovery—with the goals of drawing on Hokkaido University's outstanding drug discovery technology base, finding still-greater drug discovery seeds, further strengthening its technological resources, boosting research efficiency, and raising the success rate. We are also moving ahead with efforts related to the FINDS (Pharmaceutical Innovation Discovery competition Shionogi) program, which is a new mode of industry-academic research institution cooperation. FINDS calls for Shionogi to make public announcements of its needs to research institutions in Japan, encourage those institutions to supply the seeds of innovative drugs that match those needs, and then working to commercially develop the ensuing seeds. In fiscal




2008, we ultimately selected five seeds from the many submissions and were able to start full-scale cooperative research programs for those seeds. Going forward, we intend to continue and strengthen these kinds of initiatives as we do our utmost to discover promising drug discovery seeds.

#### Fostering the Development of Globally Active Researchers

Shionogi believes that world-class researchers are the key to creating epochal new drugs, and its Pharmaceutical Research Division is therefore engaged in multidirectional personnel exchanges with the research units of its various overseas partners in collaborative research programs.

Aiming to foster the development of human resources able to lead cooperative drug development programs overseas, Shionogi began its Global Research Leader Training program. In fiscal 2009, the Company expects to see concrete results emerging from this training

program, and plans call for continuing to emphasize the development of research personnel with broad, long-term perspectives and globally acknowledged qualifications.

#### Successfully Realizing Drug Discovery Dreams

In fiscal 2009, which is the final year of the second medium-term management plan, Shionogi is emphasizing efforts to bring two or more drug candidates to the FTIH stage and select four or more compounds worthy of being designated drug development candidates.

Aiming to create high-quality development candidates with a high likelihood of being marketable, Shionogi is building world-class drug discovery technologies able to support a high rate of success regarding proof of concept (PoC) demonstrations. Among the measures the Company is taking to realize this objective are plans to establish the Medicinal Molecular Imaging Center (tentative name)

in cooperation with Osaka University in spring 2010. This center will employ molecular imaging technology able to capture in vivo images at the molecular level as it undertakes research programs ranging from nonclinical programs to bridging programs between non-clinical and clinical studies. In addition, in March 2009, Shionogi established a subsidiary, Ezose Sciences, Inc., that will develop business involving the commissioned application of serum glycan analysis technologies and discovery of novel biomarkers with the potential for enabling highly precise analyses of disease situations.

In addition, in fiscal 2011, plans call for opening a new research building that allows for the integration of currently scattered facilities along with an additional rise in the coordination of the work of researchers in those facilities. This move is expected to further strengthen Shionogi's drug discovery capabilities and create a steady stream of in-house developed, world-class drugs.