

### 3.3 Sanofi-Aventis in China

#### 3.3.1 Growth history, current state and future market growth prediction

Sanofi-Aventis (SA) first time entered the Chinese market in as early as 1982 by directly selling drug products in China. Compared with Pfizer [or other major pharma companies such as Astra-Zeneca (AZ), see below for detailed analysis about AZ], SA started R&D activities in China relatively late (e. g. it started clinical trials in China in 2005); but it recently took a series of actions trying to establish its full presence in the country. For example, in October 2008 it announced a series of initiatives including expanding and strengthening its Shanghai R&D center and opening a state-of-the-art biometrics center in Beijing. Meanwhile, it also signed a partnership agreement with Shanghai Institute of Biological Sciences. By early 2009 SA had already invested more than \$300 M in China. Including its investment made in 2009 and early 2010, SA's total China investment has exceeded \$400 M.

In addition to marketing, SA also focuses on conducting research and development in China. It is actively seeking collaboration with Chinese research institutes and universities. For example, it has planned to form research partnership with at least six Chinese research institutions to fully take the advantage of available talents in the country.

At present, SA employs a total of about 3,500 employees and has more than 200 regional sales offices in China (in addition to its R&D and manufacturing facilities). Its China headquarters are based in Shanghai.

#### 1. R&D

SA established a clinical research center in Shanghai in 2005. The original main mission of the center was to execute clinical trials for drugs it planned to market in China. The center has conducted a number of trials and product registration in China including Lantus, Plavix, Rimonabant, Dronedaron and Idrabiotaparinux, etc. In order to meet the increasing demand of more clinical trials to be conducted in China, SA recently greatly expanded the center. Currently the center employs about 200 scientists. With the recent significant expansion, the center has now become one of its global R&D arms.

Its newly opened Beijing Biometrics Center is taking the full workload of SA's clinical research including study design, data management, statistical analysis of global and local trials from phase I to phase IV and support for drug registration in both China and globally. The center is expected to play an important role in SA's long term growth in Asian market.

## 2. Research collaboration and outsourcing

In late 2007, SA formed a partnership with Tianjin Institute of Hematology and Blood Diseases (IHBD) on cancer stem cell research. In less than one year, the collaborative research team isolated leukemia stem cells and began to generate antibodies targeting acute myeloid leukemia. The results may lead to the discovery of safe and effective agents targeting cancer stem cells. Almost in the same time SA established its first clinical pharmacology unit in China through an alliance with Beijing University's Third Hospital.

In October 2008 SA formed a strategic partnership with Shanghai Institute of Biological Sciences, a member institute of Chinese Academy of Sciences, for discovery of breakthrough drugs for neurological diseases, diabetes and cancer. The partnership is part of SA's China discovery platform which intends to identify innovative, first-in-class drugs in a faster and more effective way. SA has planned to form such partnerships with at least six Chinese research institutions. At present it is still looking for research collaboration with more Chinese research institutions.

In April 2009 SA formed a partnership with Chinese Diabetes Society. The partnership was designed to initiate a study involving more than 46,000 diabetic and non-diabetic patients to analyze the genetic factors of diabetes and improve understanding of the pathogenesis of type 2 diabetes. The study is the world largest diabetes genotyping project. The results of the study could result in the identification of new molecular targets, improve the early detection of high risk diabetes patients and lead to the better treatments. Currently SA is also collaborating with Huaxi Hospital to build clinical research capacity in Sichuan province.

SA also recently launched a scholarship program in China to recognize the most promising Chinese scientists engaged in cutting edge pharmaceutical R&D in the fields of structural chemistry, biology and pharmacology. The program will help China to become a true international player in the innovative drug R&D arena.

## 3. Manufacturing

In 1995 SA established its first manufacturing facility in Hangzhou (Zhejiang Province) to manufacture drugs it initially marketed in China. It was actually a JV with Hangzhou Minsheng Pharmaceutical Group (but prior to this plant, Aventis, which was merged with Sanofi in 2004, already built its drug manufacturing plant in Beijing and, shortly after that, a vaccine plant in Shenzhen, respectively).

Starting in 2007 SA has been building an influenza vaccine manufacturing facility in Shenzhen by investing \$103 million (all SA's vaccine business in China is actually operated by Sanofi-Pasteur which currently employs about 300 people throughout China). The facility is presently under construction and planned to open by 2012.

When fully operational, the facility is designed to produce 25 million shots of vaccine each year. All vaccine products will be marketed in China.

More recently (April 2009), SA further invested \$90 M to expand its production capacity at its Lantus (insulin glargine) SoloSTAR facility located in Beijing’s Yizhuang Economical & Technological Development Area (the Yizhuang facility was originally built by Aventis in 1994). After completion (scheduled to be 2011), the Beijing facility will be able to produce 50 million units of pre-filled injections, which will further strengthen its position in China’s diabetes market. It is also a big step for SA to have a big share in the emerging markets. Currently, SA is one of the top three players in the Chinese diabetes market (the other two players are Bayer and Eli Lilly).

Meanwhile (also announced in April 2009), SA planned to spend \$39 M to relocate and expand its wholly owned manufacturing facility currently located in Hangzhou (SA has multiple plants in Hangzhou including the one jointly founded with Minsheng Pharma). The relocation and expansion are expected to complete in 2012.

**Figure 19**  
**Chronic display of Sanofi-Aventis’ entrance into Chinese market**

**SA’s major events in China**

- ❖ 1982 – First time entered the Chinese market (by selling its anti-arrhythmic drug Cordaron in China);
- ❖ 1990 – Established a poultry vaccine manufacturing facility in Nanchang, Jiangxi Province;
- ❖ 1994 – Established (by then Aventis) Beijing manufacturing facility (in Yizhuang, Beijing);
- ❖ 1995 – Established a manufacturing facility in Hangzhou, Zhejiang Province (a JV with Hangzhou Minsheng Pharmaceutical Group);
- ❖ 1996 – Established (by Aventis) a vaccine plant in Shenzhen (now called Shenzhen Sanofi-Pasteur Biological Products Co. Ltd.);
- ❖ 2005 – Established a clinical research center (also its R&D center) in Shanghai;
- ❖ 2007 – Established first clinical pharmacology unit (partnering with Beijing University’s Third Hospital);
- ❖ 2007 – Formed a partnership with Tianjin Institute of Hematology and Blood Diseases (IHBD) on cancer stem cell research;
- ❖ 2007 – Starting building an influenza vaccine manufacturing facility in Shenzhen (to be opened by 2012);
- ❖ 2008 – Announced plans to form research partnerships with six Chinese research institutions;
- ❖ 2008 – Expanded Shanghai R&D center;
- ❖ 2008 – Opened Beijing Biometrics Center;
- ❖ 2008 – Signed a partnership agreement with Shanghai Institute of Biological

Sciences;

- ❖ April 2009 - Formed a partnership with Chinese Diabetes Society;
- ❖ April 2009 – Expanded production capacity of its Beijing manufacturing facility;
- ❖ April 2009 – Announced to relocate and expand its Hangzhou manufacturing facility (to be completed by 2012);
- ❖ October 2009 – Formed a vitamin manufacturing JV with Hangzhou Minsheng Pharmaceutical Group.

**Table 23**  
**List of Sanofi-Aventis’ current facilities in China**

No.	Facility/division	Location
1	Clinical Research Center	Shanghai
2	Clinical Pharmacology Unit	Beijing (in Beijing University’s Third Hospital)
3	Biometrics Center	Beijing
4	Drug R&D Center	Shanghai
5	Partnerships	Tianjin Institute of Hematology and Blood Diseases; Shanghai Institute of Biological Sciences; Chinese Diabetes Society; Huaxi Hospital (Sichuan Province).
6	Five manufacturing facilities (four of them are JVs)	Beijing, Nanchang, Shandong, Shenzhen and Hangzhou. Four JVs: Beijing Aventis Pharmaceutical Co. Ltd.; Hangzhou Sanofi-Synthelab Minsheng Pharmaceutical Co. Ltd.; Shandong Demik Co. Ltd.; Shenzhen Sanofi-Pasteur Biological Products Co. Ltd.
7	Regional Sales Offices	> 200
8	Drug Products	> 20 (including Lantus, Plavix, Rimonabant, Dronedarone, Idrabiotaparinux, Clexane, Aprovel/Co-Aprovel, Cordarone, Lantus, Amargl, Taxolere, Eloxatin, Essentiale, Targocid, Rilutek, Xatral, Triace, Rulide, Stilnox, Perenan, Depakine, etc.)