OPPORTUNITIES IN THE PHARMACEUTICAL INDUSTRY

MARKET INFORMATION

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Business Sweden, China
THREE REASONS WHY PHARMA IS AN INTERESTING MARKET FOR SWEDISH COMPANIES

DRIVEN BY AN AGGRESSIVE HEALTH PLAN AND DEMOGRAPHIC TRENDS THE PHARMA INDUSTRY WILL GROW

1. HIGH GOVERNMENTAL PRIORITY
   - A promoted industry in the 12th five year plan and recognized as an industry that will need significant investments in new and cutting-edge technologies either by acquisition or in-house development
   - The Healthy China 2020 government plan comprehends investments of 1.3 trillion EUR by 2020
   - A strengthened patent system, more widespread medical insurances and enforced pharmaceutical related regulations provides incitements for foreign players

2. STRONG GROWTH DRIVEN BY DEMOGRAPHIC AND SOCIETAL FACTORS
   - A growth leader of the pharmerging (emerging pharmaceutical) markets as well as most developed markets with a projected average market growth of 15-18% (2012-2017)
   - Expected to be the second largest pharmaceutical market by the end of 2015 (over 115 Billion USD)
   - Growth is driven by demographic factors, an increased demand in rural and suburban areas and a more Westernized lifestyle leads to more modern health problems
   - China’s pharmaceutical market for Western medicines is expected to earn 76 billion USD in revenue in 2014 and to reach 315 billion USD at a compound annual growth rate (CAGR) of 22.5% by 2020

3. A FRAGMENTED MARKET WITH HIGH TRUST TO WESTERN BRANDS
   - Chinese market is still highly fragmented and inefficient; the top ten companies in China only control twenty percent of the Chinese market (in most of the western markets this value is far above 50 percent)
   - Chinese consumers have high confidence in foreign brands drawing customers away from domestic generic brands
   - Following the global trend; as the big pharma companies in Sweden struggle with cut downs, SMEs grow in numbers of employees and propel the Swedish innovation in the sector

CHINA IS PROJECTED AS THE SECOND LARGEST MARKET GLOBALLY, BUT INNOVATION IS DRIVEN FROM ABROAD

SIZE AND GROWTH RATE
- In 2014 China was the third largest market behind US and Japan with 11% market share. By 2015 China is expected to surpass Japan as the second largest.
- Despite recent decline in growth rate, the market is expected to maintain a high and stable growth above 12% until 2020.
- Current focus is largely on innovation-based medicines and unique differentiators (first-in-class or best-in-class). Branded generics or generics are of less interest.

OTHER MARKET CHARACTERISTICS
- Despite considerable governmental investments in the pharma industry in the recent years the level of innovation still lags.
- Despite 5,000 pharmaceutical companies in China, no single blockbuster drug (i.e. with sales exceeding EUR 400 million) has been delivered in the last 30 years.
- Between 2007-2012, on average, only four domestic drugs per year were approved for marketing in China.

The diagram shows compound annual growth rate (CAGR) of biomedical R&D expenditures by country adjusted for inflation, 2007-2012.

There are several exciting opportunities for Swedish companies within pharma (1/2)

### Market Characteristics

- As China’s pharmaceutical market is driven more by market needs than innovation, there is still potential in the drug market for prevalent diseases.
- However, as innovation is improving, many Chinese pharma companies are looking to develop “Me-too” or “me-better drugs”, i.e., improved versions of marketed pharmaceuticals.
- This leads to a demand by domestic companies to find foreign co-developers and partners (licensing partners, JVs, and M&As) to develop these same-class “me-too” or “me-better” compounds. Of largest interest are novel compounds that have just started global clinical trials.
- According to the focus of the 12th five year plan, the largest opportunities within the small molecule drug area are anti-infective drugs, drugs for cardiovascular diseases, for endocrine and metabolic diseases, for CNS disease and for autoimmune diseases.
- The regulatory environment in China however remains a hurdle. Getting a drug approved takes time and the registration process in China is complicated, why finding a local partner for market entry is crucial.
- Potential partners include multinational pharma companies as well as smaller drug development companies (see examples to the right).

### Potential Customers/Partners

- Xcovery
- Bei Gene
- Centaurus Biopharma
- Shenogen Pharma
- Asclelis
- Hutchison MediPharma
- ZAI Laboratories
- Hansoh Pharma
- Hengrui Medicine
- Ascentage Pharma
- Advenchen Labs
- Chipscreen BioSciences
- CSPC Pharmaceutical
- Simcere Pharma
- Zhao Ke Pharm

### Differentiated Generics

- While the market for pure generics is crowded and generally hard for a foreign company to access, the demand for differentiated generics is expected to grow.
- Differentiated generics are generics that have some unique feature or attribute (e.g., new form of administration, better effect on a specific target group).
- Differentiated generics are entitled to premium pricing in China which is viewed by many Chinese pharma companies as a very promising and profitable market opportunity.
- Possible collaboration possibilities for Swedish companies include contract research organizations (CROs), contract manufacturing organizations (CMOs), JV or M&A.
- The regulatory environment in China however remains a hurdle. Getting a drug approved takes time and the registration process in China is complicated, why finding a local partner for market entry is crucial.
- Potential partners include multinational pharma companies as well as smaller drug development companies (see examples to the right).

### Novel Compounds

-/...
**THERE ARE SEVERAL EXCITING OPPORTUNITIES FOR SWEDISH COMPANIES WITHIN PHARMA (2/2)**

**MARKET CHARACTERISTICS**

- As one of seven prioritized industries in the 12th 5-year plan, biopharmaceuticals is of huge interest by Chinese pharma companies.
- But the field of biologics is still in its early days in China, and there’s a strong need of foreign influences.
- According to the 12th five year plan, in particular demand are monoclonal antibodies, vaccines and biosimilars, and in particular humanized monoclonal antibodies, vaccines, genetically engineered protein and polypeptide, nucleic acid drugs and gene therapy, cell therapy and blood products.
- Of largest interest are antibody products that have finished clinical research.
- Not all biologics are appropriate for China, as low cost is prerequisite for success, there’s no use in introducing a therapy that most Chinese can’t afford, hence biologics with the potential of becoming a more affordable biopharmaceutical have the best chances.
- The regulatory environment in China however remains a hurdle. Getting a drug approved takes time and the registration process in China is complicated. Market entry through a multinational or domestic partner is recommended.
- Potential partners include multinational pharmaceutical companies, R&D centers, leading biologics companies in China and innovative biologics development companies (see examples to the right).
- Possible collaboration models include licensing co-development, M&As.

**AFFORDABLE BIOLOGICS**

**POTENTIAL CUSTOMERS/PARTNERS**

- Hengrui Medicine
- Biotech Pharma
- Genor Biopharma
- Fosun Pharmaceutical
- Fudan Zhangjiang BioPharmaceutical
- Lansheng Guojian Pharmaceutical
- 3SBioInc

ONE OF CHINA’S LEADING PHARMA DEVELOPERS IS LOOKING FOR PARTNERS TO PROPEL INNOVATION

INSIGHTS FROM THE CHINESE INDUSTRY

ZIZHU FACTS
"Caring for life, promoting human health"
A high-tech enterprise with activities in pharmaceutical R&D, manufacture, and marketing on both domestic and foreign markets. With an experience of over 40 years on the market and a strong R&D department, CR Zizhu is now one of the largest research and production bases for family planning medicines in China. Main focus is on reproductive medicine.

ZIZHU FOCUS AREAS

- NOVEL COMPOUNDS
- DIFFERENTIATED GENERICS
- AFFORDABLE BIOLOGICS

ZIZHU COMMENTS ON MARKET TRENDS

- Pharmaceutical market trends
  - R&D is the most obvious trend. Chinese companies are focusing on developing innovative medicines, since this is where there margins are better and there’s less competition
  - As the Chinese society is aging rapidly, medicine treating the elderly has great market potential. E.g. medicine for Alzheimer’s and Parkinson’s disease
  - Price versus effect is driving the reproductive medicine market
- Innovative needs within their line of business
  - Innovative drugs for existing diseases at the same or lower price but with a better curative effect
- View on partnership/s
  - CR Zizhu is working with both domestic and international partners and is open for more partnerships
  - The most essential quality in a partner is focus on long-term development in China
  - Essential product requirements are both drugs in a clinical phase and ready offerings with proven Active Pharmaceutical Ingredient (API), Mechanical of actions (MOA) and clinical studies

SOURCE: BUSINESS SWEDEN RESEARCH
THERE’S A STRONG COMMUNITY ON THE SWEDISH PHARMA MARKET WITHIN INNOVATIVE MEDICINE

EXAMPLES OF COMPANIES WITH PHARMA OFFERINGS

BIOVICA INTERNATIONAL AB
- Provides the market’s most sensitive test for cell division that enables earlier discovery of cancer as well as a better follow-up after diagnosis

MODPRO
- Has developed a new technology that enhances pharmacological properties of existing molecules, to be used to shorten R&D cycle, rescue clinical failures and prolong patents of drugs

BIOLAMINA
- Offers an exceptional material that is used to cultivate primary cells outside the human body, which is a pre-requisite for stem cell research, and the only material free from animal components (which means it has been cleared for medical use in humans)
- Seven products on the market and target market estimated to 1 billion EUR

CANTARGIA
- Showed that leukemia stem cells express a protein on the surface called IL1RAP, which is not expressed to a large extent on normal cells
- Has developed specific antibodies against IL1RAP, and will now document the lead product candidate before commencing clinical trials in 2016

CELGENE
- More than 300 clinical trials at major medical centers are using compounds from Celgene.
- Investigational compounds are being studied for patients with incurable hematological and solid tumor cancers

BLUEFISH PHARMACEUTICALS
- A long tradition of industrial entrepreneurship, Bluefish Pharmaceuticals has become one of the most progressive generics pharmaceuticals companies in Europe
- Focus is on developing a wide range of high quality generic pharmaceuticals within all major therapeutic areas

SOURCE: BUSINESS SWEDEN RESEARCH
PHARMACEUTICALS PROVIDE OPPORTUNITIES FOR JOINT FORCES WITH A CHINESE DEVELOPER

IN SUMMARY, THE PHARMACEUTICAL INDUSTRY HAS SIGNIFICANT MARKET POTENTIAL, CONCRETE BUSINESS OPPORTUNITIES AND A SWEDISH COMMUNITY READY TO RESPOND TO THE DEMAND

MARKET POTENTIAL
- The Chinese pharmaceutical market is on the brink of becoming the second largest in the world
- Despite massive government support foreign influences propel the innovative advancements
- Strong demand for western partners
- Continued stable growth due to a rapidly growing old population, a larger middle class and broader healthcare
- A fragmented market with high trust to western brands but with a complicated and time consuming regulatory environment

IDENTIFIED OPPORTUNITIES
- Opportunities for Swedish companies have been identified, particularly within:
  - “Novel compounds” for e.g. cardiovascular diseases, endocrine and metabolic diseases, CNS disease, autoimmune diseases
  - Differentiated generics
  - Low cost biologics, e.g. humanized monoclonal antibodies, vaccines and biosimilars, protein and polypeptides
- For market entry partnering up with a domestic or multinational is necessary
- Of largest interest are substances that are cleared for clinical trial

STRONG SWEDISH CAPACITY
- Sweden is regarded as a country with a rich pharmaceutical heritage through large established players on the market like AstraZeneca
- Innovation is however propelled by SMEs nowadays
- Sweden has a number of established SMEs with exciting products and global credentials
CONTACT BUSINESS SWEDEN IN CHINA FOR MORE INFORMATION

Business Sweden
Shanghai Office
12F, Sail Tower, 266 Hankou Road, Huangpu District,
Shanghai 200001, P.R of China
T: +86 21 6218 9955
F: +86 21 6217 5152
shanghai@business-sweden.se
www.business-sweden.se

Business Sweden
Beijing Office
Room 609, 6/F, CYTS Plaza, No 5, Dongzhimen Nandajie
Beijing 100007, P.R of China
T: +86 10 5815 6006
F: +86 10 5815 6223
china@business-sweden.se
www.business-sweden.se