

cpbreview

China Pharmaceutical and Biotechnology Review

COVER STORY

CURE FOR PROCUREMENT

DRUG TENDERING IN CHINA: HARD NEW REALITIES FOR WHOLESALERS, DISTRIBUTORS,
AND THE INDUSTRY AT LARGE

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Andreas Amrein on sales and marketing

PEOPLE

Andreas Amrein
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Sibutramine

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BioSino Bio-technology and Science Inc

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GB INFORMATION

Our mission is to bring comprehensive and timely coverage and analysis of China's pharmaceutical industry to pharmaceutical companies, life science companies, investors, academia, and government.

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Cover Story



Cure for procurement

With the release of last year's "Opinion on Strengthening the Centralized Procurement of Drugs by Medical Institutions," and related regulatory initiatives, the architects of China's future medical system began the process of thrusting the flaming sword of healthcare reform into the dark heart of the nation's pharmaceutical tendering, procurement, and distribution sector(s). While changes to pharmaceutical procurement guidelines have been a subject of debate for well over a year, it is only now that regional governments have begun to implement these systems. As results from the initial rounds of tendering are made public over the first quarter of 2010, it is apparent that the new central drug procurement framework, while potentially solving some problems which have plagued drug tendering in the past, will also create new challenges for many of the relevant stakeholders and, at this juncture, remains very much a work in progress.

Procuring new procurement

Early governmental desires regarding the creation of new drug tendering and procurement systems were expressed in the January 2009 release of the "Opinion on Strengthening the Centralized Procurement of Drugs by Medical Institutions," which was drafted by a mix of stakeholder agencies including the Ministry of Health (MOH), State Food and Drug Administration (SFDA), National Development and Reform Commission (NDRC), State Administration for Industry and Commerce (SAIC), State Council Office for Rectifying Business Misconduct, and others. Salient points of the Opinion included:

- Call for full-scale implementation of a centralized, on-line drug procurement system at the provincial level, including creation of relevant administrative bodies and technical platforms
- Required participation by all public not-for-profit medical institutions at county level or above as well as SOE-owned medical facilities
- Suggested frequency for tendering/procurement of once per year

- Use of a Centralized Procurement Catalogue which includes all drugs available to medical institutions (with the exception of certain narcotic, psychotropic, radioactive, and raw TCM pharmaceuticals)
- Bidding/tendering by drug wholesalers will be replaced with direct bidding/tendering by drug manufacturers. Manufacturers should directly distribute to medical facilities or use authorized distributors
- Medical institutions will contract directly with the drug manufacturer or authorized distributor; contract periods should not be less than one year and contracted drug quantities should be based on past usage patterns at the facility in question

Midway through 2009 (June 19), the relevant agencies released a document clarifying certain aspects of the (January) Opinion:

- The 'government led' concept means that the government will organize procurement, take charge of setting up non-profit centralized drug procurement platforms, and supervise the entire procurement process
- Procurement will be handled at the provincial level and should be conducted online with complete transparency
- Experts to evaluate bids will be randomly selected from a database to prevent malpractice
- The winning drug manufacturer will be responsible for the drug's distribution within the province. The manufacturer has the option to either distribute the drug itself or select another qualified distributor

Short-term repercussions from the new procurement framework

Drug tendering under the new procurement framework is already in progress. As of the end of Q1 2010, at least half of China's provinces, autonomous regions, and municipalities

under central government have either partially or totally completed initial procurement rounds. In most cases, procurement for products on the Essential Drug List (EDL) was undertaken in advance of non-EDL pharmaceuticals. A variety of issues (most, eminently predictable based on the new rules), have emerged.

Rough treatment for tender agents and distributors:

The new procurement guidelines carry a one-two combination punch dealt directly to significant portions of the drug wholesale and distribution sector. Provincial bidding centers have been asked to select a small pool of qualified drug distributors (from a field of potentially thousands) which will be authorized to participate in the centrally-tendered drug supply chain. These agents will be required to have Good Supply Practice (GSP) certification and likely will consist of larger entities with solid regional governmental ties. Some regions (including Ningxia and Xinjiang) have stipulated that wholesalers will have no involvement in central tendering, while others, such as Heilongjiang, have banned both wholesalers and distributors. Unlike many regulations which remain on the books but go unenforced, it would seem that the new tendering rules are being taken seriously. For example, after a multi-round vetting process, Beijing recently selected only ten distributors authorized to carry out centralized drug distribution within the municipality, and, as of March 10, Liaoning Province has nullified all tendering results for Kunming Pharmaceutical Company and prohibited the company from participating in the procurement process for two years.

In addition to significantly limiting pharmaceutical wholesaler and distributor access to regional governmental procurement centers, the new regulations also move to pry apart the close relationship between these agents and the end user- hospitals and medical facilities. One reason for the unwieldy number of wholesaler/distributors (over 9,000 companies by some estimates) in the China pharmaceutical sector has been the ability of small wholesalers to survive on tight relationships with medical facilities - in some cases with just a single key hospital. Via blood relations, guanxi, or other arrangements, wholesalers have in many cases been able to act as gatekeepers to hospital formularies, requiring a slice of the action from manufacturers and upline distributors in order to place products on pharmacy shelves. The new procurement regulations now specify that tendering will occur directly between medical institutions and drug manufacturers, their agents (for foreign companies with minimal domestic presence), or (in some cases) top level large distributors. Moreover, post-tendering confirmation and finalization of supply contracts - traditionally another step in which non-transparent incentives entered the process - will be done directly between government authorities and manufacturers; (provincial authorities on behalf of Tier 3 hospitals and grouped prefectural city authorities for Tier 1 and 2 hospitals). In short, the new rules challenge wholesalers and distributors from both upstream and downstream directions, denying participation in central bidding processes (supply) as well as short-circuiting the importance of relationships with the next users in the value chain (demand).

Downward pressure on drug tender prices:

Close administration of drug tendering by provincial health-care authorities keen to realize medical system savings mandated by the central government has resulted in tender prices that are notably lower than 2008 levels in many regions. Average price reductions have ranged from 4% (Inner Mongolia) to 34% (Shanxi), with a number of provinces still yet to complete bidding. These lower price levels apply to both EDL and non-EDL drugs, although essential drugs have, as expected, seen greater overall price reductions- for example, prices for drugs on the EDL in Hunan were reduced by 43% compared with 2008.

Centralized on-line procurement glitches

According to the MOH, several problems have arisen with current on-line bidding platforms:

1. Some regions have been slow to develop online procurement platforms
2. Instead of establishing their own platforms, some provinces have used third-party platforms for the online purchasing process, thereby not adhering to the 'government-led' principle
3. As many as one-third of the provinces have been charging pharmaceutical companies bidding registration and service fees, which violate the non-profit principle of the drug procurement policy
4. Certain drugs have at least two different prices depending on the type of medical institution (e.g. EDL drugs at grassroots institutions vs. urban facilities - this issue has been especially apparent in certain regions including Jiangsu Province)

Future impact of the new system

Fewer, bigger, middle-men:

With only larger, more established operations being granted entrée into the centralized procurement system and many smaller shops finding coveted guanxi rendered irrelevant, or at least unusable in the new system, China's drug wholesale and distribution sector is poised to see significant consolidation... and outright attrition. Seeing the writing on the wall, numerous distributors began to form alliances in 2009, many in response to procurement requirements associated with the essential drug system- requirements that are echoed by the new tendering framework. While the alliance model may work in some cases, it is likely that in the crucible of the centralized procurement system, these alliances will either disintegrate or fuse into larger, consolidated players.

Manufacturer-distributor tie-ups:

Under the new regulations, pharmaceutical companies will be tendering directly to hospitals and clinics. Currently, domestic pharmaceutical companies can be divided into two camps—those which have grown or acquired drug distribution capabilities (or are part of larger conglomerates with drug distribution arms), and those which are purely manufacturers. Drugmakers participating in the bidding process with no in-house logistics/storage capabilities will need to secure distributors able to assist with order fulfillment. This issue is not a new one, but it is likely that the number of available qualified distributors will be less, and that these parties may have more bargaining power. Manufacturers may seek to enter into more formal or long-term arrangements with distributors, or may consider building or buying distribution capability. To the extent that the new procurement framework creates more transparency and reduces unreported cash flows in the distribution sector, foreign publicly listed pharmas may begin to consider participation in this area as well.

'Quality first, price reasonable' ...or vice-versa?

By zealously hammering down drug prices, healthcare authorities are essentially pushing a portion of the cost of the new medical reforms onto pharmaceutical manufacturers. This is not surprising—the architects of the healthcare reform have required regional governments to shoulder a significant portion of local hospital and medical facility operating costs in a setting of falling medical revenues. The January 2009 Opinion suggested that drug procurement will be guided and evaluated by the principle of 'quality first, price reasonable.' That said, there is growing concern among the healthcare and pharmaceutical community that drug manufacturers faced with reduced profits will resort to cutting corners in drug quality.

While falling prices may tempt manufacturers to skimp on QA/QC, the SFDA is in the process of both tightening manufactur-

ing GMP regulations and increasing GMP oversight and enforcement. In the short term, (some) drug manufacturers may indeed resort to quality shortcuts; however in the long haul, caught between the Scylla of price constraints and the Charybdis of increased costs to meet GMP (and perhaps taking on storage and logistics functions), the inevitable result for the domestic pharmaceutical manufacturing sector (like its wholesale and distribution brethren) is consolidation.

Working on a master plan:

Even as the first rounds of tendering for 2010 are winding down, the MOH and other agencies have begun to (privately) circulate drafts versions of "Regulation of Drug Procurement for Medical Institutes" which will both further refine and clarify the requirements for provincial centralized drug procurement systems and lay out additional rules and responsibilities for participating hospitals and healthcare facilities. While the new regulations may alter drug tendering guidelines to address some of the emergent problems of the new system, the long-term implications of the new procurement framework for the Chinese pharmaceutical industry remain the same: a narrowed field of larger players in both the manufacturing and (especially) distribution business areas. None of this comes as a surprise. The central government has demonstrated a strong interest in promoting significant consolidation and the creation of national champions in these sectors—goals that will likely be met, at least partially. While more distribution drug-gernauts such as Sinopharm can be expected to emerge from these conditions, putting drug procurement in the hands of provincial authorities means that regional favoritism will continue to remain an issue. China's pharmaceutical procurement system will undoubtedly find a new equilibrium in response to the changing regulatory landscape and healthcare reforms. In the interim, the major stakeholders, including manufacturers, distributors, hospitals, and clinics, can expect a period of flux, upheaval, and uncertainty.

Tendering information by region

Region	Tender Status	Tender Method	Specifics	Number of companies/drugs/formulations	Price results	Additional
Xinjiang	Finished Jan 2010	On-line	No wholesalers, only certificated GSP distributors and GMP manufacturers	First Batch, 1,880 companies participated, 9,804 specifications shortlisted. Second Batch, 1,559 companies participated, 4,912 specifications shortlisted.	First batch reduced by 23.57%, Second batch reduced by 27.1% compared to 2008	
Ningxia	EDL finished	On-line	GMP manufacturers or GSP imported drug distributors	722 companies participated, 698 companies won bids for 776 specifications of 369 drugs		
Guangdong	All finished Dec 2009	On-line		2,925 companies and 1,694 distributors participated, 25,765 specifications shortlisted, 296 EDL drugs shortlisted		

Gansu	Western Medicine finished 2009	On-line		1,506 companies participated for 14,088 specifications, 10,498 specifications shortlisted, Winning rate was 74.5%	Average tendering price reduced by 28.95%	
Inner Mongolia	All finished Jan 2010	On-line		2,114 companies participated for 27,154 specifications, 19,718 specifications of 6,751 drugs won	Tendering price reduced by 4% compared with 2008	
Henan	All finished Dec 2009	On-line		4,001 companies participated for 26,738 specifications, 16,600 specifications won	Average tendering price reduced by 12.25% compared with 2008	
Hainan	Drugs used in medical institutions finished Dec 2009	On-line	No wholesalers, only GMP or GSP manufacturers (or level-one agents for imported drugs)	2,219 companies participated, 1,906 companies won bid for 14,324 specifications	Average tendering price reduced by 11% compared with 2008	
Heilongjiang	EDL finished Nov 2009	On-line	No distributors, only drug manufacturers (or agents of foreign drug companies)	2,439 specifications of 307 drugs involved	25%-30% decrease in drug price	Will supervise procurer, manufacturers, distributors and punish bribery
Hunan	EDL finished Jan 2010	On-line		4,661 specifications submitted, 2,437 specifications won	43% lower than average prices in 2008	
Shanxi	Drugs used in medical institutions finished Jun 2009	On-line		2,839 companies participated for 21,328 specifications, 14,707 specifications won bids	34.29% lower than average prices in 2008	
Shaanxi	Fourth online round of bidding started February 2009	On-line		3 batches of the 14,316 regulated drugs won bids	Prices have dropped by 13.64%	
Shandong	Drugs excluding EDL started Nov 2009	On-line		2,679 companies participated for 31,459 specifications, 17,445 specifications short-listed		Centralized purchasing from medical institutions including county hospitals and hospitals above the county level
Qinghai	EDL finished Mar 2010	On-line	GMP manufacturer or and GSP distributors	47 companies won bids	23.92% lower than average prices in 2009	
Tianjin	All drugs beginning Apr 2009	On-line		11,984 specifications short-listed	10.28% lower than average prices in 2009	

Top Stories



Supersize market

Obesity is one of the major health challenges of the new millennium. Easy to discount as an aesthetic issue, obesity is in reality a significant risk factor for a range of serious diseases including diabetes, cardiovascular disease, certain cancers, lipoprotein disorders, stroke, and hypertension among many others. Obesity is increasingly a widespread issue and was officially recognized by the WHO as a global epidemic in 1997. As of 2005, an estimated 400 million adults (roughly 9.8% of the total global population) are considered obese. Successful treatment for the disease is difficult to achieve – compliance rates with diet and exercise regimes are low, and bariatric surgery remains an option that is both costly and not without significant risks. Pharmaceutical companies have long sought medical solutions to treat obesity, with only mixed success to date. (Currently available anti-obesity drugs work by suppressing appetite or interfering with nutrient absorption.) Pharmacological intervention and education geared towards altering lifestyle habits were recently in the spotlight when First Lady Michelle Obama declared war on childhood obesity in the US, but victory is undoubtedly a long way off. Moreover, the battleground is not limited to the US and the West- many nations, including China, are now realizing that obesity increasingly represents a cause of significant morbidity and mortality moving forward.

Socio-economic development and lifestyle changes have brought obesity and accompanying diseases to Asia. The Working Group on Obesity in China estimated the number of overweight or obese Chinese at 281 million people and rising. The prevalence of obesity in China is still much lower than in the US, where two-thirds of all adults are overweight or obese, but the rapid progression of the disease, particularly among children, is alarming. A study published in the *Chinese Journal of Epidemiology* in 2004 showed that the prevalence of overweight and obesity in children (age 7 to 18 years) increased by 28 times, and obesity itself increased by four times between 1985 and 2000. Another recent study published in the *Journal of Pediatrics* warned that if these overweight and obese children continue on to become obese adults, they face a predicted 10 to 20 year shorter life span and will likely develop

the chronic diseases normally seen in middle age adults when they are in their twenties.

WHO classification published in 2000	
BMI	Classification
< 18.5	underweight
18.5–24.9	normal weight
25.0–29.9	overweight
30.0–34.9	class I obesity
35.0–39.9	class II obesity
≥ 40.0	class III obesity

Economic Burden of obesity

The disease categories of "overweight" and "obese" are defined differently in China, as health risks are greater for Asians at a lower BMI compared with Caucasian populations. The WHO defines overweight as having a BMI of 25 or above and obese as having a BMI of 30 or above. In China, a BMI of 24 or greater is considered overweight and a BMI of 28 or greater is considered obese. Using data from the 2002 National Nutrition and Health Survey, the prevalence of overweight and obesity, and population attributable risks (PAR) for hypertension, type II diabetes, coronary heart disease, and stroke were used to calculate direct medical costs, including costs of outpatient visits, physician services, inpatient visits, rehabilitation, and medication. Using this data, the Third National Health Services Survey determined that the total cost attributable to overweight and obesity in China is approximately RMB 21.11 billion, accounting for 25.5% of total medical costs for the four chronic diseases listed, and 3.7% of total medical costs in 2003.

Obesity defined

Obesity is most commonly caused by excess caloric intake coupled with a lack of physical activity, and genetics. In rare instances, obesity can be the result of certain endocrine disorders or medications. On a societal level, obesity can be attributed to easier access to unhealthy foods, reliance on cars for transportation, and a decrease in physical leisure activities. Recent studies have pointed to environmental pollutants that may interfere with lipid metabolism, causing obesity. Genetic links to being overweight have also been discovered although scientists stress that they are not responsible for the global obesity epidemic. A UK research team accidentally discovered the FTO gene while studying diabetics and found a strong link between the FTO gene, which they suspect regulates body fat levels, and BMI. Another study published April 2006 in *Science* discovered that about 10% of humans have a sequence variation near the insulin-controlling gene INSIG2 that renders susceptible people less able to inhibit fatty acid and cholesterol synthesis, resulting in higher levels of body fat.

Overweight and obesity is determined worldwide using body mass index (BMI) which is calculated by kilograms/meters². In 2000, the WHO published its classifications for BMI values (listed in the previous table). Another important measure of cardiovascular risk is central adiposity (i.e.: high waist to hip ratio). Studies have shown that central adiposity occurs at lower BMI levels in Asians than in Caucasians and China's central obesity cutoff point for waist circumference in men is 85cm and 80cm for women.

Treatment for obesity

Beyond lifestyle changes such as regular exercise and healthier diets (which are universally plagued by compliance issues), overweight and obese patients may seek medical interventions to augment weight loss. Many obese patients have found success with bariatric surgery—according to a meta-analysis conducted by UC Los Angeles average weight loss after 36 months was 53kg for biliopancreatic diversion, 41kg for Roux-en-Y gastric bypass (RYGB), 35kg for adjustable gastric banding, and 32kg for vertical banded gastroplasty. In spite of clear weight loss results, gastric bypass is an invasive procedure which carries significant risk. As such, it is only recommended to patients with a BMI over 40 who have failed previous attempts at weight loss. Pharmaceutical interventions have become increasingly popular to assist patients who experience difficulty losing weight with diet and exercise regimens.

Orlistat (Xenical) and sibutramine (Meridia/Reductil), the only two anti-obesity drugs approved for long term use in the US, are also approved for the same indication in China by the SFDA. Weight loss drugs approved for short-term use or approved

drugs used off-label for this indication are also available.

Appetite suppressants available in China

The most commonly prescribed medication of this class is Abbott Laboratories' sibutramine, marketed under trade names Reductil or Meridia. It was first registered in the US by Abbott in 1997 and entered China in 2001. There are currently 29 approved sibutramine manufacturers with 14 unique registered brands in China. The drug was not awarded separate pricing, nor was it included on the reimbursement drug list. The maximum retail price for sibutramine is RMB 140 for 5mg*30 capsules or RMB 285 for 10mg*10 capsules*3 plates. (See the Product Profile section later in this issue.)

Sibutramine's mechanism of action is similar to many antidepressants—it is a serotonin, norepinephrine, and dopamine reuptake inhibitor. This is different from older, now defunct anorectics (like fenfluramine) that actively stimulate the release of these neurotransmitters. The UK suspended sibutramine use January 2010 after the EMEA recommended suspending its license in Europe due to reports of sudden death, heart failure, and renal failure. The US FDA is currently reviewing data regarding sibutramine-related cardiovascular events. Following these concerns, the SFDA announced February 26 that all sibutramine manufacturers should modify the 'safe and reasonable use' section of the drug's package inserts, as well as submit post-marketing evaluation plans. China's National Center for Adverse Drug Reaction (ADR) Monitoring indicated that 298 sibutramine ADR cases were reported between January 1, 2004, and January 15, 2010, but no reported deaths. Chinese manufactured sibutramine came under fire in December 2008 when the US FDA released a notice warning consumers not to purchase 28 weight loss drugs—19 of which originated from Chinese manufacturers. According to the notice, the products contained undeclared and unapproved APIs including sibutramine, rimonabant, phenytoin, and phenolphthalein.

Rimonabant, marketed by Sanofi Aventis as Acomplia, reduces appetite by blocking the endocannabinoid system—the same system stimulated by THC. It was approved in Europe in 2006 for the treatment of obesity in patients who either have a BMI greater than 30 or patients with a BMI greater than 27 with comorbid type II diabetes or dyslipidemia. However, due to reports of severe depression in patients taking the drug, the EMEA suspended the drug in 2008. In China, Sanofi Aventis received IND approval for rimonabant January 5, 2009 and is currently seeking further regulatory approval.

Bupropion, an atypical antidepressant and smoking cessation aid, is used off-label for obesity. Bupropion was developed by GlaxoSmithKline and approved as an antidepressant in the US in 1985 under the brand name Wellbutrin. It was withdrawn from the market in 1986 due to reports of seizure, and reintroduced in 1989. There are currently 13 bupropion manufacturers in China—all domestic players. Two major combination drugs containing bupropion are undergoing clinical trials for obesity treatment: Contrave (bupropion and naltrexone) and

Orlistat product pipeline (from SOURCE)

Pipeline of new orlistat seeking regulatory approval						
Number of new orlistat seeking regulatory approval		15				
Total number of applications by potential new entrants		15				
New applications						
Company Name	IND applications	IND applications	Other applications	Current regulatory status	Market entry date	Regulatory Region
Chongqing Chongyuan Pharmaceutical Co., Ltd. 重慶重源藥業有限公司	2	2	0	IND Approved	Nov 25, 2009	Domestic
United Laboratories 聯合藥業有限公司	0	2	0	IND+ CDE review	Nov 13, 2009	Domestic
Jiangsu Zhongyuan Pharmaceutical Co., Ltd. 江蘇中源藥業有限公司	1	0	0	IND+ CDE review	Jul 1, 2009	Domestic
Chongqing Chongyuan Pharmaceutical Co., Ltd. 重慶重源藥業有限公司	0	1	0	IND+ CDE review	Jun 7, 2007	Domestic
Hubei Zhongyuan Pharmaceutical Co., Ltd. 湖北中源藥業有限公司	0	1	0	IND+ CDE review	Jun 15, 2009	Domestic
Hubei Zhongyuan Pharmaceutical Co., Ltd. 湖北中源藥業有限公司	1	0	0	IND Approved	Jun 1, 2009	Domestic
Hubei Zhongyuan Pharmaceutical Co., Ltd. 湖北中源藥業有限公司	0	0	0	IND Approved	Feb 22, 2010	Domestic
Beijing Wellso Pharmaceutical Co., Ltd. 北京維爾索藥業有限公司	1	0	0	IND+ CDE review	Feb 4, 2009	Domestic
Chongqing Chongyuan Pharmaceutical Co., Ltd. 重慶重源藥業有限公司	0	1	0	IND+ CDE review	Jun 7, 2007	Domestic
Hubei Zhongyuan Pharmaceutical Co., Ltd. 湖北中源藥業有限公司	0	1	0	IND+ CDE review	Jun 15, 2009	Domestic

Roche orlistat lawsuit details (from SOURCE)

Case Name	羅氏藥廠(中國)有限公司與重慶重源藥業有限公司、重慶中源藥業有限公司
Plaintiff	Roche Pharmaceuticals 羅氏藥廠(中國)有限公司
Defendant	Chongqing Chongyuan Pharmaceutical Factory Co., Ltd. 重慶重源藥業有限公司、重慶中源藥業有限公司
Product Name	Orlistat, Xibumax 奥利司他、西布美安
Brand Name	Orlistat (Xibumax) 奥利司他 (西布美安)
Company	Roche Pharmaceuticals, Chongqing Chongyuan Pharmaceutical Factory Co., Ltd. 羅氏藥廠(中國)有限公司、重慶重源藥業有限公司
Address of case	重慶市重慶區臨江門外 T22010101-10010101
Case number	2009年重慶市第一中級法院民事
Level	第一中級法院
Law Office	重慶市重慶區臨江門外 重慶市第一中級法院民事
Judge	張國平、張國平
Cost	重慶市第一中級法院
Legal Counsel	羅氏藥廠、重慶重源藥業有限公司
Impound Date	2009-10-10
Legal Proceedings	民事訴訟

Empatic (bupropion and zonisamide). (See below.)

Combination drugs in the pipeline

Contrave is currently recruiting for a Phase II clinical study sponsored by Orexigen Therapeutics in the US to compare the effects of the drug versus placebo on food craving (measured by fMRI). Naltrexone is an alcohol and opioid dependence treatment. The drug is marketed by Sirton Pharmaceutical under the brand name Narcoral since 2005 and by Beijing Wellso Pharmaceutical since 2002.

Empatic, bupropion and zonisamide, is also being studied for

its effect on obesity in the US. Zonisamide is a sulfonamide anticonvulsant used as an adjunctive treatment for partial-onset seizures in adults. Zonisamide alone, as well as in combination with bupropion, is currently being studied for weight loss efficacy.

Nutrient absorption blockers in China

Orlistat inhibits gastric and pancreatic lipases to prevent the breakdown of triglycerides into absorbable free fatty acids. The standard prescription dose of 120mg per capsule prevents an estimated 30% of dietary fat from being absorbed in the intestines. The over-the-counter (OTC) dosage of 60mg per cap-

sule prevents approximately 25% of fat absorption. Orlistat is intended to be a part of a sensible diet and exercise plan and is notorious for its side effects, mainly steatorrhea (frothy, foul-smelling stools). Part of orlistat's success can be attributed to the aversion therapy-like effect of steatorrhea on dietary choices for individuals (and presumably those living in close proximity to them).

Orlistat is available either by prescription under brand name Xenical by Roche or OTC as Alli (a half-dose of Xenical) by GlaxoSmithKline in most countries. In China, Roche markets orlistat under brand names Xenical and 'Sainike' (GBI translated). Roche has been the sole manufacturer of orlistat in China since 2000, but faces 10 potential new entrants that include Zhejiang Hisun Pharmaceutical, GlaxoSmithKline, and the United Laboratories. Orlistat did not receive national general pricing, but was awarded national separate pricing with a maximum retail price of RMB 196 for 120mg*24 capsules. Roche was sued for unfair competition and monopoly by Taiji Group Chongqing Pharmaceutical Fuling Factory Co. in 2001 and by Waycome Pharmaceutical in 2007 in Chongqing City. (Roche lost the case brought by Taiji. Waycome Pharmaceutical lost its case against Roche.)

Future for weight loss treatments

Weight loss medications continue to be appealing to consumers as a tool to assist them in weight loss goals, but may be of limited effectiveness for some patients. Even with heavy marketing and early success with Alli in 2007, GSK saw its US sales plummet 53% to USD 139 million in 2008. The moderate weight loss achieved through these medications may not meet consumer expectations and are often not considered to be worth the unpleasant side effects. In recent years, the Chinese government has taken on the obesity epidemic by targeting the young — building more playgrounds, requiring students to exercise for an hour everyday at school, and discouraging parents from taking their children to fast food chains. The success of these programs is not certain as it hinges not only on imprinting healthy habits on children, but changing parental (and grandparental) perception of what constitutes a healthy child. Despite increasing attention from government health authorities, China's growing affluence, urbanization, and preference for refined/processed foods means that obesity will continue to be a growing problem. Drug companies able to effectively market pharmacotherapies for obesity will literally be able to live off the fat of the land for some time to come.



Andreas Amrein on sales and marketing

This month, GBI sat down with Andreas Amrein, Head of Marketing and Sales Operations for Novartis China, to talk about pharmaceutical commercial sales and promotion - including a comparison of strategies and tactics used here to those in Western markets. Andreas also shares his opinions on medical rep-doctor relations, hospital listings, and the challenges of product launches in China. For a biography of Andreas Amrein, please turn to page 27.

GB: Well Andreas, thanks for joining us

AA: Thank you Matt, it's a pleasure.

GB: Why don't we start off with you telling us a bit about your background prior to coming to China, and what you've done since you've been here?

AA: Without going back too much, I originally started out as a physicist with banking experience and Novartis hired me after my MBA studies to work in strategy at headquarters. After that, I worked in mergers and acquisitions also at the global level across all divisions and across all geographies, mainly for pharma and generics. In 2002, I had my first interaction with China when I moved to Singapore to take over a strategy and business development role for the whole Asia-Pacific region. At that time I worked on projects like field force expansion in China, which is still a big theme today, contract field forces, and business development projects. Later on, I went to Indonesia to do marketing and sales in a typical emerging market and after that, Novartis asked me to move to Germany to head a business unit in a highly sophisticated top ten market. So this combination of experiences of emerging Asian markets but also of a sophisticated top ten market like Germany and Europe was what the company was looking for when they sent me to China to help upgrade the marketing and sales organization and prepare China to become a top contributing country within the organization.

GB: So your role this time around in China has been focused mostly on sales and the marketing associated with that, correct?

AA: That is right, yes.

GB: Great. So your experience with the sales organization in China versus a developed market... can you tell us a little about that? How is it different than a developed market like Germany?

AA: I would say that the principles of selling pharmaceuticals are pretty much the same everywhere. Nevertheless, there is some difference in the daily execution. If you compare specifically China and a European country like Germany, you see in China there is a much higher intensity of interaction between the field force

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and the doctors. In Germany, the call frequency with a doctor is about once every one and a half months or even less because the doctors are very busy and they do not like to see the reps necessarily. Well here in China, you hear of call frequencies of several times per week and in some extreme cases, even once a day. Of course, the average level of discussion with a doctor then becomes less scientific. You cannot bring big scientific news every other day with the doctor. Also I noticed that the depth of the personal relationship between the rep in China is much deeper compared to European countries. It's much more personal and you see that a lot of the activities with the doctors like round table discussions, dinner meetings, lunch meetings, or even at congresses allow to have a much deeper, stronger relationship between the rep and doctor. On average, the quality of the call in China might be a little bit less scientific and that also has to do with a difference in the average skill set of the rep comparing China and Europe. The average age of a rep in Germany is about 10 years older than in China. Here many of the reps have been hired straight out of college and they don't have a long experience either in pharmaceutical products or even in selling skills; therefore, you cannot expect the same level of depth in the calls. That also brings another difference which is in Germany or in Europe you expect a rep to be able to detail 3 or even 4 products to the doctors. Here in China, the trend goes to single product lines where you want your reps to focus on really one product and to do that very well. Some of the most successful products in China have been detailed this way, as we know. So you see there are a lot of differences. Another one is in China you cannot plan a call with a doctor. The doctors are very very busy all day and the medical reps try to squeeze in time when they can talk to the doctors. In Europe, it's just the opposite—to see a doctor, you have to make an appointment sometimes one and a half or two months in advance even to be allowed to talk him or her. So, it's less plannable. Additionally, I would say that doctors in China are also much more difficult to segment and the reason is that beyond the data that you personally get from the rep who knows the doctor, there is very little external data about the doctor. In countries like Germany, very often you can buy prescription level data at the doctor level and additional data that allows you to segment a doctor in a much more granular way and to tailor more closely the promotion to the doctors. Last but not least, the two markets are fundamentally different in the sense that a lot of the doctors in Europe do have their private clinics, so a large part of their income depends on attracting patients. So, they have a different attitude towards the patients versus in China, where the doctors work for hospitals, they get their salary, and they have hundreds of patients every day waiting outside their consulting room to see them. So, that also has an influence on how the doctor sees the patient and indirectly on how the medical rep or the company speak to the doctor.

GB: Very interesting stuff. What about in terms of compensation structure? We've done some work in this space where at least it appears to us that the bonus structure of reps in China is a very large portion of their income compared to in the more developed markets where it's a much smaller portion of their overall income. Sometimes the reps in China also have an unlimited kind of flat scale on which they're compensated per box, for instance. So, can you tell us how this difference in compensation structure for China, say versus Germany impact your ability to manage those reps and the way that they go about their jobs?

AA: I think the compensation structures in European countries, in countries like Germany, France or the UK, are the result of many many years of negotiations and to some extent the work done by the unions. They are typical of very mature markets. If you take China and other emerging countries in the region, these are still very dynamic environments that are showing a high degree of let's call it

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“China is a very special compared to other countries in that even if you have a reimbursement status for your drug, to really drive your sales, you need your drug to be listed in the hospital...”

‘aggressivity’ which can really deliver good results. Therefore a high percentage of the variable component really can push the field force here to obtain fantastic results. I would say one of the differences also I noticed besides the amount that is variable, comparing China and European markets, is in the timing. In Germany we had a certain monthly bonus and then there was an annual reconciliation bonus, and therefore you had a smooth trend in the bonus payment to the reps—that also pushed the reps to not play any games on a periodic basis. What we notice in China is that some of the companies pay the bonus on a quarterly basis and that brings the rep, on the third month of the quarter, to push like crazy to make the quarter numbers, and then the first and second month of the next quarter, there is a little bit less pressure in the system. Thus you see these huge fluctuations. We once did an analysis where the sales distribution instead of being 100-100-100, it would be like 87-87-119. When you look at this you see how it strains the system because it creates issues with stock and trade etc. and it does not reflect the real demand of the market. The patients do not come more or less into the hospital on a quarterly basis. So you find immediately the big impact that bonus payments have on the behavior of the rep in pushing for sales into the market or not. That’s another big difference.

GB: Do you see the compensation structure changing at all moving forward, or do you think it’s going to stick in this range for the next five years?

AA: So far, from what I see, there is no clear indication that it will change, but definitely there are trends regarding what benefits to include or exclude from the packages. One thing is for sure, this is changing very very fast and if the company wants to stay competitive, it has to continually monitor what the competitors are doing, not to fall behind and lose the top talent because the structure is not attractive anymore to the reps. We do see some differences across companies. For example, there are some competitors of ours where we know it’s almost impossible to attract a rep to join us because they have a very attractive compensation package. You will see differences across the companies. One thing is also sure, that salary increases and package increases are growing faster than inflation. That is another indication for the famous shortage of talent that you find in this market. Even headquarter functions or support functions expect average salary increases of 8% or 10% per year.

GB: Yes, we can see that in all areas of the healthcare space, even in the professional services area. So, I know what you’re talking about there. I want to move onto another issue which is hospital listings. So this is something that’s also maybe unique to China in the way it’s approached. Can you tell us—and you’ve also been speaking on this are recently—so can you tell us about the hospital listing process in China? How it works and how you seem to have taken a more systematic approach to the listing process than others I’ve talked to?

AA: Yes. China is a very special compared to other countries in that even if you have a reimbursement status for your drug, to really drive your sales, you need your drug to be listed in the hospital, and to get your drugs listed in the hospital, there is a certain process that every hospital is following. There is a committee and there are some meetings taking place and there are different parts of this process where the pharmaceutical company can play a role or can offer support to ensure that the drugs are being listed. Now, the good news is that this is possible—it’s possible to identify and to describe the process. So we did this exercise internally and the process is pretty standard across all the hospitals. We identified the seven steps where different activities or milestones have to happen

before the listing. And for each and every step, we have determined or defined within the company, who would be in charge to do which activity, with which support, and with which material, and we even defined some KPIs. This is to ensure that we don't miss out on any opportunities. For example, the worst thing that can happen is if a senior manager talks to the hospital director and asks why is the product not listed and the hospital director says 'I never heard about this product'. That would mean that something went wrong long before. Now the bad news is, nobody really knows, even the hospitals themselves, when these famous meetings take place and when the decisions are being made. So from a company perspective, it's almost impossible to plan when you get your product listed in a specific hospital—yes or no. Even on a quarterly basis it's impossible. So at the beginning of the year, we would have a rough plan on how many new hospitals we want to get the listing for our products, but we cannot say exactly in which quarter (and you can forget about saying in which month), the sales really will pick up. That creates also a bit of a strain in the system, because it's difficult to plan the sales. Therefore is also difficult to plan the sales target for the reps or the parts of the organization in charge of a certain hospital.

GB: Sounds quite like a complicated process. So you mentioned that a number of different people will be involved in this listing process. Can you tell us what kinds of people are involved? Is it the rep, is it government, is it more regulatory focused people that are involved in the reimbursement process, or who actually gets involved in the listing from your side?

AA: For sure we have the medical rep who has the daily interaction with the prescribing doctors in the hospital. But then, depending on the function in the hospital and the seniority of the people, different parts of the organization are also involved. In most situations you definitely have the district sales manager who gets involved with the more senior functions of the hospital. Normally we have each hospital also covered by a key account manager who has access to other parts of the hospital. And for scientific support, we would be using the MSLs, or team members from the medical team who really offer the solid scientific support with the decision makers in the committee of the hospital.

GB: Great. So, I'm assuming that's for the large hospitals, the tier-3 hospitals. Are you targeting any tier-2 or tier-1 hospitals, and is the process the same, or is it much more one-on-one with the medical reps?

AA: It really depends on the size of the hospital. In principle, the process is the same and there are no big differences here. Of course, in some smaller hospitals, maybe the decision making process is much faster, less bureaucratic, and you know who the players are. For some big hospitals, sometimes you don't even know who the members of the committee are. Actually, even the members of the committee don't know beforehand that they were planned to be members of the committee. So, I guess the hospitals do this on purpose to avoid any risk of having, at any point in time, a conflict of interest. So it's important for every pharmaceutical company to be really professional and committed to everybody in the hospital and not to focus their attention only to certain doctors and certain functions, but to follow a very consistent state of the art approach with the whole hospital.

GB: My next question surrounds management tools and software. So it sounds like your role has been very process driven in bringing more processes into place and codifying a lot of ad hoc kinds of activities. So, could you tell us a bit about your perspective on management tools and

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software in China? How do they work in China versus in other markets? What works here and what doesn't work in China when it comes to tools and software?

AA: Working for a big multinational pharmaceutical company which has been very successful in many very advanced markets, we basically have access to any kind of top software and top tools which have been used in these markets. So that is a good start. On the other side, we have to be fully aware that China in many ways is not as advanced yet in the use of this software and some of this software has been designed and developed for what today we could call data-rich countries where you have big complexities. Therefore the big challenge when you want to introduce or rollout tools and software in China, is not to come in with a big overkill of complexity that leaves the local organizations confused, first. And second, it doesn't work if you cannot feed the software with necessary data to actually obtain a meaningful result. So we see that some of the companies try this, other companies are on the other end of the spectrum. They use locally developed software, which then creates another big challenge because it doesn't fit in with the so-called global standards, which doesn't make the colleagues in IT very happy. Then there is a way in between where you use really good global software and you customize some functions or simplify it to make it meaningful and useful in the local market. And this is also the way that we are following.

GB: My next question is around launching products in China. You've been involved in some big product launches. So, can you tell us a bit about how do these launches go and what kind of activities did you do in the launches, and which kinds of activities did you think had impact versus less impact in bringing the product out to the market?

AA: When you launch a product in China, the biggest challenge in the beginning is that you don't have reimbursement. Normally the products that are being launched are rather on the expensive side because the novelty will bring additional benefits to the patients. So you have something new but the sales volume that you can generate is rather limited in the beginning of the launch. Nevertheless, you need to launch it to generate awareness in the market, and I would say all the classic pre-marketing and marketing activities apply in China as well. So you do it as soon as possible when the product is still in Phase III or before launch, like setting up the contact with KOLs and investigators to generate awareness of the product and its benefits and try to generate some noise around the products. In the launch phase then, it's really where the promotion starts, once you get to the approvals and then it's about organizing events. It can be a speaker tour where you invite KOLs from overseas to come and speak through video-feed also to tier-2 and tier-3 cities. Then you trickle it down into symposia and round table discussions. You do all these kinds of activities, also the classic PR activities—with press conferences, publications, etc. One part that we found out to really help us in the launch of new products is also doing patient education where we work together with associations and doctors to bring the products, the benefits of the products, disease management close to the patients. Here we had some very successful examples where we would offer education, free testing for the patients, and other ways to familiarize both the patients and the doctors with the new drugs. These things work very well.

GB: So, all the ones you mentioned work well, or the patient education in particular worked well?

AA: Definitely. Patient education works particularly well because it allows both

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the doctors and the patients to familiarize and establish a relationship with the new treatment.

GB: In terms of the other activities that you mentioned are there any others you did for which you thought a fair amount of money was spent but the result may have been more disappointing? Not a particular activity, but a general class of activities—whether it's the round tables you mentioned or the tours of US or European KOLs coming through town?

AA: It's always coming back to the fundamental question of what is the ROI of what you're doing. To put it very simply, you cannot measure it. You cannot measure in hard numbers if what you're doing is generating what you expect. Also because not having any prescription data or not having access to very granular data at the hospital level, it's almost impossible to run pilots in selected geographies or areas to see what does work and what does not work. One way of what we do is, coming back to the first question, once you have a very close relationship with the doctors (that we do have thanks to the high intensity of our promotion to doctors with our field force) we seek feedback from the doctors through the field force and sometimes we hear that some of the activities that we did maybe did not have this profound impact that we were expecting and other times we hear that they actually did have a profound impact. So to help us decide which activities to push or prioritize further versus others, we have what we call integrated brand teams where it's not only marketing who decides how much we spend or what to do, but we involve also other commercial functions - specifically representatives for the field force- who then provide very straight and direct feedback of what they think would be a good allocation of funds and what kinds of activities. They have a very direct interest because it immediately affects their bonus if the activity was good or bad. But, I would say a lot of it comes through gut-feeling or having a solid experience in the market. After some years, you know what works and what doesn't.

GB: Very interesting, thanks for that. The next question I have is to dig deeper into the aspect you mentioned that is near and dear to our hearts, which is data. We're a data business, of course, in addition to doing our consulting work. I'm curious to hear from your side being so involved in the sales and marketing processes in China, and trying to scale this organization, what kind of data do you need? What's most critical for China and how do you use it and how do you integrate it into your process?

AA: My principle is always more data is better than less data. It sounds very superficial but in these last years we have really been looking at any kind of data that we can get our hands on and up to the point that when some agencies approached us with some reports that they generated, on for example, community hospitals, the first question that we would ask them is 'can you give us the raw data?' This, because there is a relative data scarcity in this market regarding sales. If you take IMS, the coverage they have, the size of the panel, the accuracy of their data or also other data sources like CPA and Hai Hong, very often you will find that different data sources are complementary, sometimes overlapping, sometimes inconsistent, sometimes contradicting each other. It's very difficult—there's not one data source where you can say 'this is it, now I'm happy'. So for us the challenge is first of all to get access to as many data sources as possible and second, to constantly validate these data sources also with our internal data. For example, when we buy data from one data source at the hospital level, what we compare normally is the growth rates and if we see large differences compared to our own data that we might get from the distributors, we take the next step and approach the data source and transparently share with them the issues that

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we find, to try together to work it out, to iron out these differences—and it’s a win-win. We get accurate data, and the data source can sell more accurate data and position itself in a better way against its competitors. But it’s really all about the data and building trust with your sources and I see a huge opportunity for the future for everybody who is in the data business in China because there is definitely a big need for good data. It’s not only to track performance, but you need good data to do target setting at the hospital and doctor level because the market is so big. We’re talking about large hospitals, but with the healthcare reform the market is going to grow much larger, and if you look at community health centers and rural hospitals, we’re talking about tens and tens of thousands of possible outlets for prescriptions and drugs and the problem is nobody really knows exactly where they all are, how many doctors they have, who are the doctors, etc. I think there will be a big competition for this big opportunity for data source providers and there can be a benefit for everybody, definitely for the pharmaceutical companies which will be in a better position to decide on the investments to make in these markets to generate growth.

GB: Excellent, thanks for that. You mention the investments for growth and I want to go back on that note to a previous question on the marketing. Now I remember seeing a slide you put up the other day that talked about budgeting for marketing activities and I believe half was for events and half was across many activities, and you said some work and some don’t. You get a gut feel on what was successful from the reps themselves talking to physicians. Do you have a prioritization exercise you go through and how do you prioritize with such a lack of data?

AA: I would say to some extent the process is similar in China compared to other countries where definitely you do not reinvent the wheel every time you allocate the budget. The strength is that if something has been working more or less in the previous year and you were able to grow your sales, you cannot go wrong if you more or less do the same thing in subsequent years and maybe you fine-tune the activities a little bit. The weakness is of course that nobody wants to take any risks to make a bold decision to redefine the promotion approach that the company follows for the brands. I would say the way we prioritize is when we have these cross functional team meetings during the budget cycles where we have representatives from marketing, sales, and other functions. We review objectives and compare them against the plan that we have. Every year we have a very structured marketing planning process which starts with an analysis phase building up to insights setting, up the strategic imperatives and then moving down into the tactical level. When we go to the tactical level is where we really start to allocate the budgets across the activities. The allocation happens across activities but also across regions and across hospitals. Normally we try to keep the same distribution year on year, also because there is no strong evidence to suggest we are doing something fundamentally wrong. So far, all of our brands have been growing really nicely and gaining market share so there is no reason to come back and say ‘okay we’re doing something wrong, we need to dramatically change’. Also having access to competitive intelligence and knowing more or less what the competitors are doing, we know that we are not far off from what the market in general is doing. Then when you go down to the next level of detail that means at DSM level with the field force, when we have this fund we call the regional fund which is used for the daily promotion of the drugs in the hospitals. There is a very much bottom-up exercise as well where you have a first-line manager and the medical rep who work out the details of the execution of these large chunks of the budget. Here again, a lot of it is based on their experience and the kind of relationships they have with the doctors and the hospitals.

GB: You mentioned just a few minutes ago the competitive intelligence aspect of knowing what your competitors are doing, and I'm assuming they're all doing the same—finding out what their competitors are doing, trying to adopt best practices, essentially trying to differentiate their own product from others. So, what's the secret in China to differentiating your product from the competition?

AA: If there was a secret and I would know it, then I would not tell you. But, what we found out is that you just need to look at the market data. The companies in the multinational market really divide up in different tiers. There are some companies doing extremely well over the years, and there is a second tier and there is a third tier. Of course everyone is looking at the first tier and wondering what put them into the first tier. That's when you start to talk to the doctors—could it be that it's the product portfolio or could it be that they engage in certain type of activities in terms of quantity or quality that is different from us? We found out by talking and listening to our customers that indeed, there are differences. Different companies do have different approaches even in the way they internally are structured and how they treat, hire, train, and incentivize the medical reps. Through competitive intelligence, right now we pretty much know how every competitor, for example how many weeks they spent in training a rep, or how the incentive system looks like. I'm sure also they know about us, and we see some differences there. For example, if there is a company who really invests four to six weeks in training a rep during the orientation phase, you can expect a different quality compared to another company which invests only two weeks in training or on-boarding a rep. Effectively when you talk to the doctors, and ask them 'which company do you perceive to be the most scientific?', there's always the same name that pops up. Or when you ask a doctor, 'which company do you perceive to organize the most events or the highest quality events?', then maybe another name pops up. 'Which company is very strong in patient education?' and a third company name pops up. We see different companies have different strengths. Of course, our objective is to take the best from everybody and try to become even better than them. There is not one clear differentiator which says 'okay this is what you need to do to be the best'. It's really a complex market, a lot of different things that you need to do from how you manage regulatory bodies to how you manage the doctors, the hospitals, the hospital pharmacist, the distributors (that's another big issue that we have not yet discussed, how you manage distributors). So you need to do it right everywhere or not make any big mistakes in any one of those. But it's very difficult. It's too complex to say 'this is the one thing that makes the difference to bring us into tier 1'.

GB: A lot of the things you mention there are rep-related and basically helping the rep to develop a better relationship with the physician, and that's been the driver in China for a long period of time. You said it's the primary way to drive sales and we've had previous people talk to us, Dave Preston is one, who used to run Sanofi and now is GM of Boehringer Ingelheim, who claims that's the only way to build sales in China and that there's no real concept of brand equity outside of the relationship of the rep and the physician. So, do you think there is a way to build some kind of brand equity outside of this rep-physician relationship in China?

AA: For sure the rep-doctor relationship is an absolute must. I've looked at hospital level data where I noticed (right now we can buy this data for selected hospitals) where sales of a product drop to zero within three months, and upon my questioning of the local sales force management, it turned out that indeed we had lost the rep there and there was a vacancy for a few months, and the sales

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dropped like a stone. On the other side, the positive part is we had hired a good rep again to fill that and the sales picked up again at the same level as before. So there is no way to underestimate the importance of the rep in the hospital to drive the sales. Yet, we also see from discussions with the heavy prescribing doctors or speaking to the KOLs that companies do have brand equity, especially if they have been in the market for many years with a significant and consistent investment in promoting the drugs with scientific activities, with training of the doctors, and in maintaining the solid relationships. There are doctors who perceive a company to really be strong and are more inclined to be a friend to this company and to listen to the evidence brought by the rep and to prescribe the drugs. So there is equity that comes with a year-long commitment to the market—absolutely. Regarding the individual brands, there are of course some big brands in China that are the result of many years of a solid commitment and investments, and they do have brand equity. Young brands that have just been launched and which do not yet have the credibility are a little bit more at risk and you definitely need a strong field force to help them achieve the level of commitment and relationship and loyalty from the doctors. But older brands, they do have an equity.

GB: Well my last question, Andreas, is around the future. Where do you see the Chinese pharmaceutical market going and where do you see yourself in that context?

AA: I think that right now what is happening in China is that it’s really writing history with the healthcare reform and at least from what you can read in the press and in the official statements, China is preparing to reach a new level of growth and volume and this is extremely attractive. It’s probably the most dynamic market in the world right now, also in terms of size. So everybody’s really excited about it. What we have to be aware of is there are some risks, and one of the biggest risks is that to fuel all of this growth, you need a much larger pool of talent. Already now you see that there is a struggle to find the right talent and the challenge that all companies have is how to grow and expand your operations without diluting the quality of the services that are offered. So the organizations—all of the pharmaceutical companies—are getting larger and this is bringing in new complexities in terms of all the supporting functions, how many people you need to hire, to train, to incentivize, the systems that you need, etc. First of all, you need to bring additional people of the same level of quality that you have, to preserve the quality. But even that is not good enough. You need to further improve the quality because the organizations are getting more complex and more difficult to manage. Maybe 10 years ago you could run your China operations like a medium-large family business, and now we are talking about the only benchmark that’s left for China is the US in terms of complexity. All of this happened in the last 10 years, I would say. This is definitely what makes this market so exciting like no other place in the world. One thing that is necessary is to not make any big mistakes, to have a local leadership that really understands the market, who has been here long enough, and who commits to stay here long enough because all of these expansion plans or growth plans also require a certain continuity and consistency over the years. So, right now it would be a mistake to replace senior managers every few years. In this whole world of complexity and dynamic environment, you need a certain stability and continuity, also to preserve the culture of a company.

GB: Well those are great observations, Andreas. Thanks for sharing them with us and thanks for joining us on this show.

AA: Thank you so much Matt.

Key facts and figures

Reported cases and deaths from infectious diseases in China 2009

Diseases	2009		2008		Percent change in incidence (%)	Percent change in mortality rate (%)
	Cases	Deaths	Cases	Deaths		
Total	5,898,415	15,267	5,262,758	12,622	9.21	15.18
Type A and Type B infectious diseases	3,499,582	14,851	3,541,163	12,433	-5.10	13.61
Plague	12	3	2	2	350.00	0.00
Cholera	85	0	168	0	-49.61	-
Infectious atypical pneumonia	0	0	0	0	-	-
HIV	13,281	6,596	10,059	5,389	31.37	21.77
Viral hepatitis	1,425,020	1,018	1,407,664	1,049	0.72	-3.40
Hepatitis A	43,841	21	56,052	10	-22.18	100.00
Hepatitis B	1,179,607	792	1,169,569	831	0.35	-5.25
Hepatitis C	131,849	141	108,446	123	20.96	13.98
Hepatitis E	20,275	24	18,525	28	8.89	-14.29
Other hepatitis	49,448	40	5,072	57	-10.67	-30.23
Poliomyelitis	0	0	0	0	-	-
Human infectious highly pathogenic bird flu	7	4	4	4	66.67	0.00
H1N1 influenza	121,843	654	0	0	-	-
Rubella	52,461	39	131,441	102	-60.29	-62.34
Epidemic hemorrhagic fever	8,745	104	9,039	103	-3.74	0.00
Rabies	2,213	2,131	2,466	2,373	-10.72	-10.63
Japanese B encephalitis	3,913	172	2,975	142	30.82	21.50
Dengue fever	305	0	202	0	50.33	-
Anthrax	351	3	336	1	3.94	100.00
Bacillary and Ameobic dysentery	271,551	38	312,522	56	-13.55	-30.95
Tuberculosis	1,076,938	3,783	1,169,540	2,802	-8.38	34.32
Endemic typhus and paratyphoid	16,938	9	15,641	7	7.74	40.00
Epidemic cerebrospinal meningitis	625	73	922	110	-32.52	-33.73
Broncho-cephalitis	1,612	1	2,387	1	-32.82	0.00

Diphtheria	0	0	0	0	-	-
Neonatal tetanus	1,412	137	1,786	191	-23.34	-30.63
Scarlet fever	22,068	0	27,782	0	-20.97	-
Brucellosis	35,816	0	27,767	0	28.33	-
Gonorrhoea	119,824	0	130,818	1	-8.87	-100.00
Syphilis	306,381	63	257,474	60	18.39	4.44
Leptospirosis	562	11	862	18	-35.12	-42.86
Schistosomiasis	3,521	2	2,948	0	18.83	-
Malaria	14,098	10	26,358	22	-46.78	-52.94
Type C infectious diseases	2,398,833	416	1,721,595	189	38.63	118.88
Influenza	198,381	13	41,692	3	373.41	400.00
Parotiditis (mumps)	299,329	1	310,826	2	-4.19	-50.00
Measles	69,860	0	120,354	1	-42.25	-100.00
Acute hemorrhagic conjunctivitis	13,707	0	22,743	0	-40.04	-
Leprosy	424	0	395	1	6.69	-100.00
Camp fever (epidemic typhus)	2,764	0	2,398	0	14.66	-
Visceral leishmaniasis	509	0	500	0	1.32	-
Echinococcosis	2,676	0	3,033	0	-12.20	-
Filariasis (elephantiasis)	0	0	0	0	-	-
Other infectious diarrheal diseases	655,658	49	730,699	56	-10.72	-11.90
Hand-foot-mouth disease	1,155,525	353	488,955	126	135.13	180.00

Source: Ministry of Health

Deals

■ Notable deals announced during the month of March

Date	Buyer/investor	Target	Stake	Status
March 1	China National Pharmaceutical Group	Guangdong Dong Fang Uptodate & Special Medicines	Acquire a 100% stake for RMB 95 million	Agreement signed
March 3	Shanghai South Investment (Group) Company	Shanghai Pharmaceutical Company	Acquire 40% stake in Shanghai General Pharmaceutical Company, 40% stake in Shanghai International Pharmaceutical Trading Company, and 16.19 million shares of Shenyin & Wanguo Securities for RMB 134 million altogether	Announced
March 5	Shanghai Kehua Bioengineering (SHE:002022)	Government	Received RMB 7.36 million from the government	Announced
March 5	DT Capital Partners	Chongqing Porton Fine Chemicals Company	Invest USD 10 million in Chongqing Porton Fine Chemicals Company	Announced
March 8	Public	Mindray Medical International Limited (NYSE: MR)	Second offering of 4 million American depositary shares, for USD38.20 per ADS	Announced
March 10	Public	Northeast Pharmaceutical Group Company (SHA:000597)	Issue 150 million additional shares to raise a total of RMB 2.96 billion	Announced
March 10	Fidelity Asia Ventures, Fidelity Biosciences	Beijing TCT Medical Technology Company	Raised USD 10 million in funding	Announced
March 11	Anhui BBKA Biochemical Company (SHE:000153)	BBKA Tushan Pharmaceutical Company	Invest RMB 58 million	Announced
March 17	International Finance Corporation	Healthway Medical Group	Issue 108 million new ordinary shares for SGD 0.13 per share	Announced
March 17	Public	Beijing Pharmaceutical Group Company	Issue about RMB 400 million in short-term financing bills.	Announced
March 19	IDGVC, Zero2IPO, SBI	OriGene Technologies	Raise USD 16 million in Series B financing round	Announced
March 19	Guangdong Kangmei Pharmaceutical Company (SHA:600518)	Bozhou Century Guoyao Company	Acquire 100% stake for RMB 163 million.	Announced

■ SFDA approvals for unique drug applications in March

Drug candidate approvals

	IND	NDA	Supplemental application	NDA reregistration, NDA reexamination, unclear
All	52	90	105	30
Domestic	24	77	80	13
Import	28	13	25	17

Drug candidate approvals by class

	Class I biological *	Class I chemical *	Class III chemical **
Domestic	4	1	21
Import	0	0	7
IND	3	0	19
NDA	1	1	9

Drug candidate approvals by company

	Class I biological *	Class I chemical *	Class III chemical **
Domestic company	4	1	15
Foreign company	0	0	3
Individual companies with IND approval(s)	3	0	12
Individual companies with NDA approval(s)	1	1	7

* Class I biological/chemical = drug candidate not marketed worldwide

** Class III chemical = drug candidate marketed in foreign countries but not in China

Note: Statistical information is generated from GBI's SOURCE data system and includes drugs already marketed in China and some common or significantly novel drugs. Some drugs, such as glucose injection, are excluded, as are candidates with abbreviated codes and traditional Chinese medicines (TCM). Companies tallied are those with unique identifiers in SOURCE.

► General**SFDA concerned about obesity drug sibutramine, wants the skinny on ADRs***Mar 1, 2010*

The State Food and Drug Administration (SFDA) announced February 26 that all pharmaceutical manufacturers who produce sibutramine, an appetite suppressant, should modify the 'safe and reasonable use' section of the drug's package inserts, www.menet.com.cn reported.

According to the announcement, pharmaceutical companies should inform doctors and patients of potentially serious adverse drug reactions (ADR) via the package inserts and submit their post-marketing evaluation plans. The SFDA also requested that doctors be aware of the drug's contraindications and ask patients to strictly follow drug instructions. Patients should not use the drug without a doctor's guidance.

Sibutramine is a neurotransmitter reuptake inhibitor commonly used to treat obesity. It was first developed by Abbott and marketed in Mexico in 1997. The drug's marketing activities have been suspended in the UK and EU due to serious concerns about its safety in relation to cardiovascular events.

China's National Center for Adverse Drug Reaction (ADR) Monitoring indicated that 298 sibutramine ADR cases were reported between January 1, 2004, and January 15, 2010, but no reported deaths. According to GBI SOURCE, there are 29 registered manufacturers of and three potential entrants for sibutramine in China, including Abbott (brand name Reductil).

Essential drug tendering yielding average price drops of 25-50%*Mar 1, 2010*

Head of the Essential Drugs and Medicines Policy Department, Hong Zheng, stated that essential drug prices have dropped considerably during provincial centralized drug purchasing following the publication of the National Essential Drug List, www.ce.cn reported February 26.

Zheng announced that 27 provinces have completed procurement of essential drug tendering, and the range of drug price decrease is between 25% and 50%. He went on to maintain that the needs of patients will be met, while providing reasonable profit margins for manufacturers.

China health agencies issue the 2010 Doping Agents List*Mar 2, 2010*

The Ministry of Health (MOH), Ministry of Commerce (MOFCOM), State Food and Drug Administration (SFDA), and other agencies issued the 2010 Doping (Analeptic) Agents List, China Medicine Information website reported March 2. Analeptic drugs are central nervous system stimulants-some of which may be used as performance enhancing drugs by athletes

According to the report, drugs on the list include anabolic agents, peptide hormones, narcotics, stimulants (including psychotropic drugs), chemical products that may be produced as toxic drugs (such as ephedrine), toxic drugs for medical use (such as strychnine), and other agents.

The production, marketing, import, export and usage of all these drugs are to be regulated by the 'Rules on Anti-Doping', published by the State Council.

Antidepressant market expected to pick up speed in the near future*Mar 2, 2010*

The market for antidepressants in China reached RMB 1 to 1.2 billion in sales in 2001 and only grew to RMB 5 billion in 2009, China Medicine Economic reported March 2. Worldwide, antidepressant sales topped USD 19 billion in 2009-indicating significant growth potential in China.

Fluoxetine (Prozac) is one of the top selling antidepressants in China, and Eli Lilly's Prozac accounted for about 75% of the RMB 1.2 to 1.5 billion total fluoxetine sales in China. The majority of Prozac sales are in large cities, such as Beijing, Tianjin, and Shanghai, while less metropolitan areas in Central and West China primarily sell domestically produced fluoxetine in hospitals. Hospitals in rural areas accounted for less than 1% of total sales.

In the past, paroxetine (marketed in China in 1999 under the brand name Seroxat by GlaxoSmithKline) did not perform well in the market due to its high price-RMB 25 per tablet. After the price was gradually reduced to RMB 10 each tablet, total sales grew to RMB 1 billion and the drug is expected to supplant Prozac as the best selling antidepressant in China.

Citalopram (marketed as Cipramil by Lundbeck) and Venlafaxine (marketed as Effexor by Wyeth) are two newer antidepressants that entered the China market in 1999 and 2002, respectively. Both drugs have experienced difficulties in the market due to their high prices, but have great potential for future growth. Citalopram observed total annual sales of RMB 500 to 600 million, while venlafaxine has observed 10% year-over-year growth over the past few years and makes up 20% of the antidepressant market.

Blood plasma supply shortages to blame for retail price increases

Mar 3, 2010

The Shanghai Pricing Bureau increased the maximum retail prices for two human immunoglobulin specifications (2.5 grams and 5 grams) by 45.6% and 58%, respectively, Security Times reported March 3.

According to the report, supply shortages are the reason behind the price increases. Starting in 2004, the government has put forth considerable effort to improve plasmapheresis centers and shut down numerous unqualified centers, while the demand for blood products has held a stable 30% growth rate. The cost of collecting blood has also been increasing, including subsidies paid to blood donors.

Currently, approximately 5,000 tons of blood plasma is needed to meet the market demand, but in 2009, the total volume of plasma used for production was less than 4,000 tons. If this trend continues, prices for blood products may continue to rise in the next three to five years.

Chen Zhu speaks out on new medical reform

Mar 4, 2010

Minister of Health Chen Zhu responded to questions on the new medical reform prior to the Chinese People's Political Consultative Conference (CPPCC), Yangtse Evening Post reported March 4.

Chen Zhu stated that the hospital reform pilot in Zhenjiang city, Jiangsu Province, has been a success and provides a good example for other cities to follow.

Mr. Chen also stated public hospitals should aim to meet the needs of the low and middle-income families that make up 80% to 90% of China's population, while private hospitals may offer more personalized care for wealthier residents. The government

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MOH The V public health projects from 2010 to the end of 2011, Shihua Financial Information reported March 4.

The key projects will cover public health emergencies, epidemic control, food safety, chronic disease prevention and control, and others. Several projects are already underway according to Dr. Ruiming Lan, the WHO's China representative.

Research Highlights

Key March Publication

A human gut microbial gene catalogue established by metagenomic sequencing.

Qin J, Li R, Raes J, Arumugam M, Burgdorf KS, Manichanh C, Nielsen T, Pons N, Levenez F, Yamada T, Mende DR, Li J, Xu J, Li S, Li D, Cao J, Wang B, Liang H, Zheng H, Xie Y, Tap J, Lepage P, Bertalan M, Batto JM, Hansen T, Le Paslier D, Linneberg A, Nielsen HB, Pelletier E, Renault P, Sicheritz-Ponten T, Turner K, Zhu H, Yu C, Li S, Jian M, Zhou Y, Li Y, Zhang X, Li S, Qin N, Yang H, Wang J, Brunak S, Doré J, Guarner F, Kristiansen K, Pedersen O, Parkhill J, Weissenbach J; MetaHIT Consortium, Bork P, Ehrlich SD, Wang J.

Nature. 2010 Mar 4;464(7285):59-65.

Abstract

To understand the impact of gut microbes on human health and well-being it is crucial to assess their genetic potential. Here we describe the Illumina-based metagenomic sequencing, assembly and characterization of 3.3 million non-redundant microbial genes, derived from 576.7 gigabases of sequence, from faecal samples of 124 European individuals. The gene set, approximately 150 times larger than the human gene complement, contains an overwhelming majority of the prevalent (more frequent) microbial genes of the cohort and probably includes a large proportion of the prevalent human intestinal microbial genes. The genes are largely shared among individuals of the cohort. Over 99% of the genes are bacterial, indicating that the entire cohort harbours between 1,000 and 1,150 prevalent bacterial species and each individual at least 160 such species, which are also largely shared. We define and describe the minimal gut metagenome and the minimal gut bacterial genome in terms of functions present in all individuals and most bacteria, respectively.

Other Notable Work

Magnetic resonance imaging of hippocampal subfields in posttraumatic stress disorder.

Wang Z, Neylan TC, Mueller SG, Lenoci M, Truran D, Marmar CR, Weiner MW, Schuff N.
Arch Gen Psychiatry. 2010 Mar;67(3):296-303.

Alterations in phosphorus, calcium and PTHrP contribute to defects in dental and dental alveolar bone formation in calcium-sensing receptor-deficient mice.

Sun W, Sun W, Liu J, Zhou X, Xiao Y, Karaplis A, Pollak MR, Brown E, Goltzman D, Miao D.
Development. 2010 Mar;137(6):985-92. Epub 2010 Feb 11.

Genetic Variations in HSPA8 Gene Associated with Coronary Heart Disease Risk in a Chinese Population.

He M, Guo H, Yang X, Zhou L, Zhang X, Cheng L, Zeng H, Hu FB, Tanguay RM, Wu T.
PLoS One. 2010 Mar 16;5(3):e9684.

Transition-State Spectroscopy of Partial Wave Resonances in the F + HD Reaction.

Dong W, Xiao C, Wang T, Dai D, Yang X, Zhang DH.
Science. 2010 Mar 19;327(5972):1501-2.



Andreas Amrein

Head of Marketing and Sales Operations
Novartis China

Andreas Amrein is currently transitioning between assignments. Until recently he was Head Marketing and Sales Operations of Novartis China, and a member of the Pharma Executive Committee (PEC). In this role he was responsible for SFE, SFA, Marketing and Sales Capabilities, Marketing Science, Competitive Intelligence, New Product Management and e-Business.

Andreas has been working with Novartis for 11 years with a track record in Business Development, Finance, Marketing and Sales, leading complex projects in both Western and Asia Pacific markets. He is a Physicist (ETH Zürich) and MBA (INSEAD) who started his career in banking and then leveraged his experience by coordinating the Novartis Group strategic planning process, building up the Asia Pacific Strategic Planning function covering 14 countries. His experience in M&A and Business Development ranges from negotiating and closing risk-sharing licensing agreements to leading large due diligences. His Marketing and Sales experience includes heading the Marketing & Sales Operations of China. Through his different roles at corporate, regional and CPO level, Andreas has solid experience in leading teams to expand, restructure, upgrade and evaluate businesses operations.

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Weihua Tang, Ph.D

Professor
Institute of Plant Physiology and Ecology, SIBS, CAS

Weihua Tang has held the positions of principal investigator and professor at the Laboratory of Plant-Fungal Interaction and Plant Reproductive Biology of the Institute of Plant Physiology and Ecology at SIBS since May 2006. She and her research group focus primarily on the signaling mechanisms in tip-growing eukaryotic cells and plant reproduction. Her work has been published in *Plant Physiology*, *The Plant Cell*, *The Plant Journal*, *Molecular Plant-Microbe Interactions*, and *The Proceedings of the National Academy of Sciences*.

Prior to joining SIBS, Dr. Tang served as Assistant Specialist March 2006 and a post-doctoral researcher May 2000 at the Plant Gene Expression Center at UC Berkeley. In April 2004, she was a visiting scientist in Signal Transduction at Pioneer Hi-Bred International Corp. in the US. She earned her Bachelors from the Department of Genetics of Fudan University in August 1993 and received her Ph.D in Plant Molecular Genetics from the Shanghai Institute of Plant Physiology of the Chinese Academy of Sciences.



Shanghai Institutes for Biological Sciences

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Company Profile



BioSino Bio-technology and Science Inc

BioSino Bio-technology and Science Inc (HKG: 8247) is a leading provider of *in-vitro* diagnostic reagents in China founded in 1988. The company's major shareholders are the Chinese Academy of Sciences and Beijing Enterprises Holding Limited (HKG: 0392), which is held by the Beijing and Shanghai Municipal Governments. It successfully went public on the Hong Kong Growth Enterprise Market (GEM) in 2006, and raised HKD 47 million through the IPO. In February 2010, Shanghai Fosun Pharmaceutical (Group) (SHA: 600196) acquired a 24% stake in Biosino for RMB 60 million via Fosun's subsidiary Fosun Pingyao Investment.

The company is headquartered in Beijing and operates a newly established 11,000 square-meter GMP compliant

plant and a microcomputer-controlled automated production line that maintains a sealed, sterile temperature and humidity controlled environment. All company facilities and operations are compliant with ISO9001:2000 and ISO13485:2003 quality control standards.

Business scope

BioSino Bio-technology and Science is primarily engaged in the research and development, manufacture, sales, and distribution of *in-vitro* diagnostic (IVD) reagents and pharmaceutical products, to hospitals and other medical institutions. Currently, the company has 90 IVD products, and over 200 reagent formats including biochemistry diagnostic reagents, immunology diagnostic reagents, and rapid tests. BioSino has developed a network of over 600 distributors and retailers across China and exports its products to over 20 countries in Southeast Asia, the Middle East, North Africa, and South America.

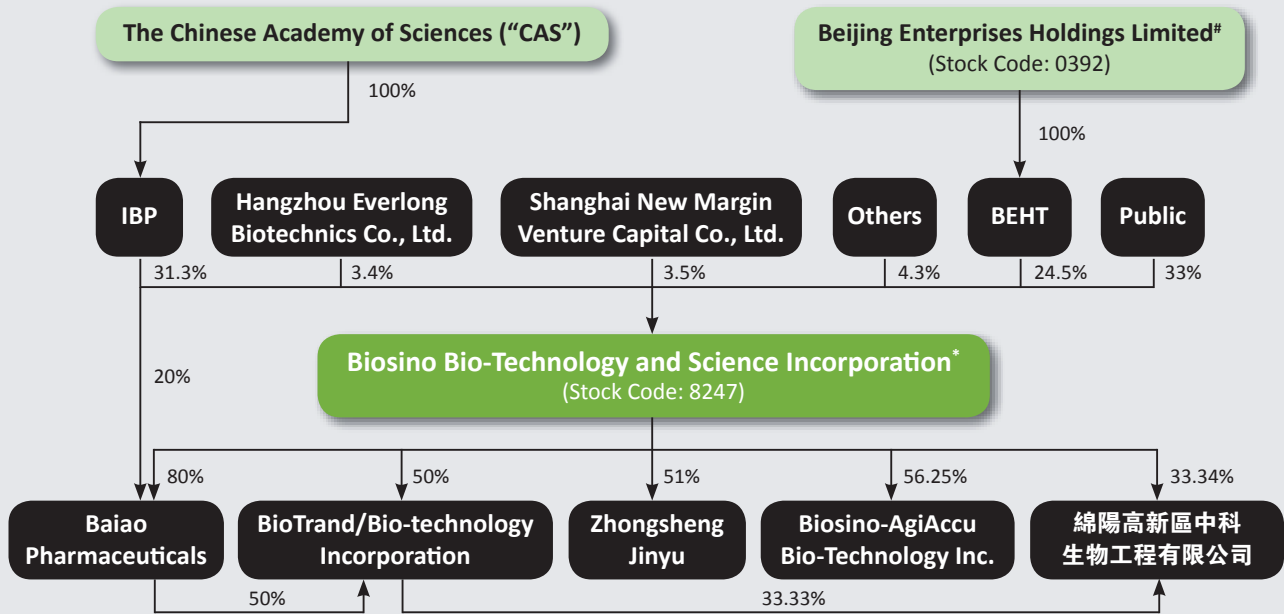
Lumbrokinase capsules, a prescription drug used to treat cerebrovascular diseases, is a major product in Biosino's medical business. The fibrinolytic enzyme is manufactured by BioSino subsidiary, Beijing Baiao Pharmaceuticals Company.

Financial performance

BioSino reported RMB 156 million in revenue for the nine months ending September 30, 2009—a 3.3% year-over-year growth. RMB 108 million (69% of the total revenue) was generated from IVD reagent products, an 8% increase over the same period in 2008. Lumbrokinase capsules, one of the company's pharmaceutical products, generated RMB 47.79 million (31% of the total revenue), a 5.6% increase over 2008.

Basic Information			
Headquarters	Beijing	Stock number	8247
Founding date	1988	General manager	Lebin Wu
Current address	No. 27 Chaoqian Road, Science and Technology Industrial Park, Changping District, Beijing, PRC	Total issued stocks	33,000,000 H shares
Tel	010-64840910	Employees	608
Fax	010-64840919	Primary business	<i>In-vitro</i> diagnostic and pharmaceutical products
Website	http://www.zhongsheng.com.cn	Date of IPO	February 2006
Stock Exchange	The Growth Enterprise Market of the Stock Exchange of Hong Kong Limited		

Ownership Structure



* Listed on the GEM of the Stock Exchange

Listed on the Main Board of the Stock Exchange

Stock Chart



Revenue (in total and segment)

	Three months ending Sept.30			Nine months ending Sept.30		
	2009	2008	Growth	2009	2008	Growth
Total revenue	55,823	46,480	20%	156,078	150,813	3.5%
Sales of IVD products	39,699	29,515	34%	108,291	100,204	8%
Sales of pharma. products	16,124	16,965	-5%	47,787	50,609	-5.6%

I Sibutramine (Source: GBI SOURCE)

Product detail	
Generic name (EN):	Sibutramine
Generic name (CN):	西布曲明
ATC code:	A08AA10
OTC approved:	No
Pipeline	
Number of new entrants seeking regulatory approval:	3
Total number of new entrant applications:	4
	IND 3
	NDA 0
	Unclear 0

Registrations	
Number of approved manufacturers:	29
Number of unique registered brands:	14
First registration date*:	2001
Number of registration events - past year:	2
Number of registration events - past 5 years:	9

* For imported drugs, initial registration data is available under the importer's own name for registration dates of 1999 and later. Prior to 1999, many imported drugs were registered under a Chinese company name.

Approved manufacturers (partial list)	Brand name	First registration	Latest registration	Import registrations	Domestic registrations
Abbott	Reductil	2001	Aug 25, 2004	6	0
Hainan Tongyong Tomgmeng Pharmaceutical Co. Ltd.		2004	Dec 1, 2004	0	1
Zhejiang Hisun Pharmaceutical Co. Ltd.	赛斯美	2005	Sep 26, 2005	0	3
Shanghai Modern Pharmaceutical Co. Ltd.	浦秀	2003	May 21, 2003	0	2

General pricing (partial list)						
Current average national general price per unit:						
Formulation: Tablets 0.6172/mg SD/Avg.*100%: 1%						
Generic name	Formulation	Specification	Max retail price	Policy reference	Effective date	Price per unit
Sibutramine 盐酸西布曲明	Capsules 胶囊	5mg*30粒	140.0	JBIG[2000]No.806	Oct 13, 2000	0.9333/mg
Sibutramine 盐酸西布曲明	Capsules 胶囊	10mg*10粒*3板	285.0	JBIG[2000]No.641	Sep 10, 2000	0.9500/mg

Reimbursement information	2009	2004
National reimbursement:	No	No
National reimbursement rate:	No	No

▷ More information about this product, including registration company names, SFDA NDA application information, pricing and tendering information, and regional reimbursement information can be found on **SOURCE** (www.source.gbipharma.com).

Equity Market Review

(RMB)

Company name	Code	Close on Feb. 24	Close on Mar. 24	Monthly change (%)	Shares outstanding (million)	Monthly volume (million)	Market cap Mar. 24 (million)
Shanghai A Share Market (Large Cap)							
Shanghai Pharmaceutical	SHA: 600849	--	--	--	1992.64	--	29.35
Shanghai Fosun Pharmaceutical	SHA: 600196	20.34	20.77	2.1%	1237.77	215.82	25.70
Jiangsu Hengrui Medicine	SHA: 600276	48.63	38.78	-20.2%	620.74	23.31	24.07
Harbin Pharmaceutical Group	SHA: 600664	17.57	17.38	-1.1%	1,242.01	83.57	21.59
Guangdong Kangmei Pharmaceutical	SHA: 600518	10.62	11.78	11%	1,694.37	622.13	19.96
Zhejiang Medicine	SHA: 600216	31.49	32.96	4.7%	450.06	89.13	14.83
Beijing Double-crane Pharmaceutical	SHA: 600062	25.74	24.98	-3.0%	571.70	55.16	14.28
Tianjin Tasly Pharmaceutical	SHA: 600535	27.52	26.28	-4.5%	488.00	38.04	12.82
Joincare Pharmaceutical Group	SHA: 600380	11.94	11.68	-2.2%	1,097.87	146.40	12.82
China National Medicines	SHA: 600511	27.46	25.48	-7.2%	478.80	42.69	12.20
Beijing Tiantan Biological Products	SHA: 600161	23.07	23.94	3.8%	488.25	85.38	11.69
North China Pharmaceutical	SHA: 600812	10.98	11.14	1.5%	1,028.58	214.59	11.46
Zhejiang Hisun Pharmaceutical	SHA: 600267	24.23	23.19	-4.3%	483.78	42.93	11.22
Guangzhou Pharmaceutical	SHA: 600332	12.15	12.59	3.6%	810.90	131.36	10.21
Guangxi Wuzhou Ahongheng Group	SHA: 600252	33.02	37.71	14%	260.94	53.96	9.84
Tianjin Zhongxin Pharmaceutical Group	SHA: 600329	25.83	26.23	1.5%	369.65	38.73	9.70
Shanghai Industrial United Holdings	SHA: 600607	--	--	--	367.81	--	8.65
Jiangzhong Pharmaceutical	SHA: 600750	26.66	27.32	2.5%	295.88	22.47	8.08
Zhejiang Huahai Pharmaceutical	SHA: 600521	25.94	26.54	2.3%	299.23	23.09	7.94
Harbin Pharm. Group Sanjing Pharmaceutical	SHA: 600829	20.34	19.35	-4.9%	386.59	42.23	7.48
Wuhan Humanwell Hi-Tech	SHA: 600079	13.87	15.46	11%	471.59	150.32	7.29
Tibet Jinzhu	SHA: 600773	9.04	12.25	36%	575.71	387.63	7.05
Jiangsu Kanion Pharmaceutical	SHA: 600557	24.21	21.93	-9.4%	319.73	45.56	7.01
Wuhan Mayinglong Pharmaceutical Group	SHA: 600993	42.00	40.45	-3.7%	165.79	12.62	6.71
Star Lake Bioscience	SHA: 600866	12.94	12.30	-4.9%	521.10	197.88	6.41
Shanxi Yabao Pharmaceutical Group	SHA: 600351	19.15	20.09	4.9%	316.48	191.83	6.36
Tonghua Dongbao Pharmaceutical	SHA: 600867	13.12	2.94	-1.4%	479.14	153.53	6.20
Zhuzhou Qianjin Pharmaceutical	SHA: 600479	27.96	27.72	-0.9%	217.73	20.55	6.04
Tianjin Tianyao Pharmaceutical	SHA: 600488	9.30	9.64	3.7%	542.89	150.64	5.23
Zhangzhou Pientzehuang Pharmaceutical	SHA: 600436	37.47	36.26	-3.2%	140.00	14.74	5.08
Shanghai A Share Market (Small Cap)							
Guizhou Yibai Pharmaceutical	SHA:600594	22.46	20.99	-6.5%	235.17	23.53	4.94
Chongqing Taiji Industry (Group)	SHA: 600129	14.26	14.18	-0.6%	328.38	139.85	4.66
Zhejiang Conba Pharmaceutical	SHA: 600572	12.96	13.90	7.3%	324.00	191.82	4.50
Shanghai Sanju Technology Development	SHA: 600614	7.48	7.91	5.7%	567.40	212.08	4.49
Shanghai Modern Pharmaceutical	SHA: 600420	15.46	15.38	-0.5%	287.73	61.83	4.43
Kunming Pharmaceutical	SHA: 600422	11.81	12.36	4.7%	314.18	115.08	3.88
Shandong Lukang Pharmaceutical	SHA: 600789	6.23	6.61	6.1%	581.58	187.47	3.84
Henan Topfond Pharmaceutical	SHA: 600253	8.68	9.05	4.3%	420.00	166.44	3.80
Zhejiang Shenghua Biok Biology	SHA: 600226	12.05	13.20	9.5%	270.37	105.07	3.57
Jiangsu Wuzhong Industrial	SHA: 600200	5.20	5.45	4.8%	623.70	291.10	3.40
Nanjing Medical	SHA: 600713	11.18	10.99	-1.7%	300.92	113.07	3.31
Dalian Merro Pharmaceutical	SHA: 600297	8.78	9.19	4.7%	350.00	100.23	3.22
Inner Mongolia Jinyu Group	SHA: 600201	9.68	10.72	11%	280.81	257.27	3.01
Shanghai Zhong Xi Pharmaceutical	SHA: 600842	--	--	--	215.59	--	3.01
Henan Joyline & Joysun Pharmaceutical	SHA: 600222	8.65	9.31	7.6%	317.23	136.64	2.95
Zhongzhu Holding	SHA: 600568	16.83	17.13	1.8%	166.47	33.21	2.85
Henan Lingrui Pharmaceutial	SHA: 600285	12.72	13.24	4.1%	200.72	97.56	2.66
Shanghai Worldbest	SHA: 600094	--	--	--	629.45	--	2.4
Shanghai No. 1 Pharmacy	SHA: 600833	13.63	14.63	7.3%	159.35	83.00	2.33
Wuhan Jianmin Pharmaceutical Group	SHA: 600976	15.36	15.11	-1.6%	153.40	93.80	2.32
Southwest Pharmaceutical	SHA: 600666	11.94	11.57	-3.1%	193.43	79.53	2.24
S & P Pharmaceutical	SHA: 600869	16.81	18.34	9.1%	120.00	30.98	2.20
Tibet Rhodiola Pharmaceutical	SHA: 600211	15.94	15.56	-2.4%	138.71	75.44	2.16
Topsun Science And Technology	SHA: 600771	6.04	8.45	40%	243.81	170.35	2.06
Ginwa Enterprise (Group)	SHA: 600080	5.58	5.89	5.6%	305.30	114.84	1.80
Sichuan Dikang Sci & Tech Pharmaceutical	SHA: 600466	9.52	10.13	6.4%	175.60	51.19	1.71
Wuhan Spring Biological Engineering	SHA: 600421	8.22	8.74	6.3%	195.60	51.19	1.71
Hangzhou Tian-Mu-Shan Pharmaceutical	SHA: 600671	12.21	13.74	13%	121.78	99.22	1.67
Shanghai Worldbest Pharmaceutical	SHA: 600656	6.25	7.24	16%	190.34	61.98	1.38
Guangxi Beisheng Pharmaceutical	SHA: 600556	--	--	--	303.69	--	1.29
Jiangsu Lianhuan Pharmaceutical	SHA: 600513	13.29	14.08	5.9%	90.00	37.62	1.27
Shandong Jintai Group	SHA: 600385	6.73	7.03	4.5%	148.11	67.33	1.04

(RMB)

Company name	Code	Close on Feb. 24	Close on Mar. 24	Monthly change (%)	Shares outstanding (million)	Monthly volume (million)	Market cap Mar. 24 (million)
Shenzhen A Share Market (Large Cap)							
Yunnan Baiyao Group	SHE: 000538	58.04	55.53	-4.3%	534.05	29.38	29.66
Jilin Aodong Medicine Industry Group	SHE: 000623	49.51	45.81	-7.5%	573.36	199.28	26.27
Sanjiu Medical & Pharmaceutical	SHE: 000999	23.85	24.04	0.8%	978.90	75.30	23.53
Hualan Biological Engineering	SHE: 002007	60.60	64.12	5.8%	360.13	63.42	23.09
Zhejiang NHU	SHE: 002001	46.12	46.80	1.5%	372.28	43.03	17.42
China Baoan Group	SHE: 000009	10.71	11.14	4.0%	1,090.75	494.82	12.15
Beijing SL Pharmaceutical	SHE: 002038	48.29	47.60	-1.4%	251.50	18.66	11.97
Livzon Pharmaceutical Group	SHE: 000513	41.26	39.28	-4.8%	295.72	14.26	11.62
Shenzhen Neptunus Bioengineering	SHE: 000078	13.93	14.12	1.4%	652.51	345.82	9.21
Huadong Medicine	SHE: 000963	20.08	21.08	5.0%	434.06	27.49	9.15
Shenzhen Accord Pharmaceutical	SHE: 000028	29.30	29.17	-0.4%	288.15	18.14	8.41
Hubei Biocause Pharmaceutical	SHE: 000627	9.60	11.78	23%	676.79	757.62	7.97
Northeast Pharmaceutical Group	SHE: 000597	25.86	23.48	-9.2%	333.81	105.40	7.84
Shanghai RAAS Blood Products Co. Ltd.	SHE: 002252	34.87	41.40	19%	160.00	35.07	6.62
Chongqing Huapont Pharm	SHE: 002004	45.90	46.59	1.5%	132.00	10.53	6.15
Jinling Pharmaceutical	SHE: 000919	11.80	12.20	3.4%	504.00	115.71	6.15
Guangzhou Baiyunshan Pharmaceutical	SHE: 000522	12.06	12.41	2.9%	469.05	219.58	5.82
Shenzhen A Share Market (Small Cap)							
Zhejiang Hangzhou Xinfu Pharmaceutical	SHE: 002019	23.22	22.40	-3.5%	220.42	69.84	4.94
Southwest Synthetic Pharmaceutical	SHE: 000788	17.78	18.48	3.9%	260.17	48.56	4.81
Changchun High & New Technology Industries (Group)	SHE: 000661	33.82	34.55	2.2%	131.33	43.73	4.54
Jiansu Sihuan Bioengineering	SHE: 000518	4.02	4.18	4.0%	1,029.56	286.51	4.30
Jiuzhitang	SHE: 000989	14.55	14.08	-3.2%	297.61	130.81	4.19
Shandong Xinhua Pharmaceutical company	SHE: 000756	8.55	9.00	5.3%	457.31	110.37	4.12
Hainan Haiyao	SHE: 000566	17.88	18.58	3.9%	211.35	78.62	3.93
Tonghua Golden-Horse Pharmaceutical	SHE: 000766	8.34	8.70	4.3%	449.02	137.36	3.91
Hubei Guangji Pharmaceutical	SHE: 000952	14.96	14.73	-1.5%	251.71	77.56	3.71
Shandong Wohua Pharmaceutical	SHE: 002107	22.04	22.25	1.0%	163.98	29.74	3.65
Jiangsu Miracle Logistics System Engineering	SHE: 002009	12.80	14.56	14%	221.01	137.28	3.22
Jilin Zixin Pharmaceutical	SHE: 002118	26.10	14.33	-45%	206.62	63.38	2.96
Chengdu Hoist	SHE: 000790	12.00	11.75	-2.1%	207.60	122.70	2.44
Apeloa Company	SHE: 000739	9.05	9.49	4.9%	256.74	118.63	2.44
Sichuan Joint-Wit Medicial & Pharmaceutical	SHE: 000809	20.00	20.55	2.8%	114.57	23.19	2.35
Chongqing Tong Jun Ge	SHE: 000591	11.53	11.08	-3.9%	196.17	99.32	2.17
Anhui Fengyuan Pharmaceutical	SHE: 000153	7.63	7.88	3.3%	260.01	113.01	2.05
Shandong Shanda Wit Science And Technology	SHE: 000915	9.66	10.89	13%	180.25	125.17	1.96
Tsinghua Unisplendour Guhan Bio-Pharmaceutical	SHE: 000590	9.99	9.27	-7.2%	203.03	144.16	1.88
Zhejiang Int' L Group	SHE: 000411	8.69	8.46	-2.6%	207.45	87.65	1.76
Jilin Pharmaceutical	SHE: 000545	9.80	10.89	11%	158.24	96.69	1.72
Zhejiang Zhenyuan	SHE: 000705	10.26	12.29	20%	125.33	136.57	1.54
Sihuan Pharmaceutical	SHE: 000605	12.83	13.88	8.2%	93.23	17.97	1.29
Zhejiang Jingxin Pharmaceutical	SHE: 002020	10.67	12.40	16%	101.55	57.59	1.26
Sanjiu Yigong Biopharmaceutical & Chemical	SHE: 000403	--	--	--	211.68	--	1.07
Guilin Jiqi Pharmaceutical	SHE: 000750	--	--	--	215.06	--	0.94

(HKD)

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Hong Kong Stock Market							
China Shineway Pharmaceutical Group	HK: 2877	16.1	20.35	26%	827.00	55.27	16.83
Sino Biopharmaceutical	HK: 1177	2.53	3.10	23%	4,782.94	447.66	14.83
China Pharma	HK: 1093	4.21	4.58	8.8%	1,534.96	94.95	7.03
Mingyuan Medicare Development	HK: 0233	1.16	1.24	6.9%	3,460.34	427.88	4.229
Extrawell Pharmaceutical Holdings	HK: 0858	1.18	1.35	14%	2,290.00	674.54	3.09
Guangzhou Pharmaceutical	HK: 0874	6.85	7.79	14%	219.90	22.22	1.71
Wuyi Pharma	HK: 1889	0.73	0.78	6.8%	1,709.77	72.42	1.33
Dawnrays Pharma	HK: 2348	1.32	1.51	14%	790.35	13.57	1.19
Long Far Pharmaceutical Holdings	HK: 2898	0.8	0.76	-5.0%	1,436.01	13.44	1.09
Uni-Bio Science Group	HK: 0690	0.39	0.43	9.0%	1,304.85	35.17	0.55
Shandong Xinhua	HK: 0719	3.23	3.41	5.6%	150.00	13.59	0.51
Fudan Zhangjiang	HK: 8231	1.95	1.85	-5.1%	198.00	4.91	0.37
Vital Biotech	HK: 1164	0.18	0.20	9.3%	1,551.06	64.28	0.31
Venturepharm	HK: 8225	0.62	0.77	24%	363.51	1.24	0.28
Biosino Bio-Tec	HK: 8247	3.42	3.81	11%	33.00	1.72	0.13

(USD)

Company name	Code	Close on Feb. 24	Close on Mar. 24	Monthly change (%)	Shares outstanding (million)	Monthly volume (million)	Market cap Mar. 24 (million)
Overseas Stock Market							
Mindray Medical International	NYSE MR	37.00	38.34	3.6%	114.10	16.94	4.37
WuXi PharmaTech (Cayman)	NYSE WX	15.85	15.28	-3.6%	68.83	9.70	1.05
China Nepstar Chain Drugstore	NYSE NPD	6.61	7.12	7.7%	105.00	3.66	0.75
Simcere Pharmaceutical Group	NYSE SCR	8.99	8.90	-1.0%	55.52	1.79	0.49
China Medical Tech	NASDAQ CMED	14.02	13.98	-0.3%	32.27	6.23	0.45
American Oriental Bioengineering	AMEX AOB	4.23	4.22	-0.2%	78.30	18.60	0.33
Sinovac Biotech	AMEX SVA	6.59	6.40	-2.9%	42.58	8.62	0.27
3SBio	NASDAQ SSRX	12.06	12.50	3.6%	21.51	0.96	0.27
China Biologic Products	OTC CBPO	8.74	11.26	29%	23.32	1.52	0.26
Tiens Biotech Group	AMEX TBV	2.40	2.49	3.8%	71.33	0.26	0.18
Chindex International	NASDAQ CHDX	11.52	11.81	2.5%	14.88	0.91	0.18
China Pharma Holdings	AMEX CPHI	3.90	3.29	-16%	43.29	1.85	0.14
Jiangbo Pharmaceutcl	OTC JGBO	9.45	9.90	4.8%	12.03	0.29	0.12
Tongjitang Chinese Medicines	NYSE TCM	3.59	3.45	-3.9%	31.70	0.26	0.11
China Aoxing Pharmaceutical	OTC CAXG	0.94	0.97	3.2%	92.87	0.54	0.09
China Shenghuo Pharmaceutical	AMEX KUN	0.78	0.83	6.4%	19.68	0.24	0.02
Sinobiomed	OTC SOBM	0.03	0.04	33%	131.42	1.76	0.01

Events

May

Medichem-2010

Date: May 18 - 20, 2010
Venue: Beijing, China
Organizer: Information Research Center of International Talent, SAFEA CMBA
Website: <http://www.bitlifesciences.com/icm2010/>

API China Spring 2010

Date: May 18 - 20, 2010
Venue: Harbin, China
Organizer: Reed Sinopharm
Email: zhen.tan@reedsinopharm.com
Website: en.apichina.com.cn

World Pharmaceutical China Summit

Date: May 19 - 21, 2010
Venue: Shanghai, China
Website: <http://www.innchinc.com/wpcs2010>

12th Annual C21 BioVentures

Date: May 25 - 27, 2010
Venue: Napa, California
Organizer: Techvision
Email: www.techvision.com/c21/contact/
Website: www.techvision.com/c21/

Biosimilars Asia 2010

Date: May 31 - Jun1, 2010
Venue: Grand Hyatt Hotel, Shanghai, China
Website: www.ibc-asia.com/biosimilars

June

Biopartnering India

Date: Jun 2 - 4, 2010
Venue: Bangalore, India
Organizer: Techvision
Email: www.techvision.com/vision/request_info
Website: www.techvision.com/network/biopartnering_india

World Vaccine Congress Asia 2010

Date: Jun 8 - 11, 2010
Venue: Singapore
Organizer: Terrapinn
Email: katrina.leung@terrapinn.com
Website: www.terrapinn.com/2010/wvcasia/

Asia Infectious Disease Forum 2010

Date: Jun 8 - 8, 2010
Venue: Singapore
Organizer: Terrapinn
Email: katrina.leung@terrapinn.com
Website: www.terrapinn.com/2010/infectious/

International Conference on Emergency Medicine

Date: Jun 9 - 12, 2010
Venue: Suntec International Convention & Exhibition Center, Singapore
Organizer: Society for Emergency Medicine, Singapore
Website: <http://www.icem2010.org/index.htm>

World Congress of Cardiology

Date: Jun 16 - 19, 2010
Venue: Beijing, China
Organizer: World Heart Federation
Email: admin@worldheart.org
Website: www.world-heart-federation.org/congress-and-events/WCC2010

9th Annual Biological Production Forum 2010

Date: Jun 21 - 23, 2010
Venue: Sheraton Frankfurt Hotel & Towers, Frankfurt, Germany
Website: <http://www.biologicalproduction.com/>