China Partnering 2013:
Follow the Growth

A five-year analysis of partnering and JV activity in China’s life science industry
2008-2012
Industry analysts all agree: for life science and healthcare companies, China is the place for growth. The pharmaceutical market is expanding at 17% to 20% per year. Drug sales are projected to rise from just over $115 billion in 2013 to $175 billion in 2015, making China the second largest drug market in the world. And in just another five years, China will surpass the U.S. to become the largest pharma market in 2020. Paralleling this meteoric rise, overall healthcare spending will triple by 2020 to over $1 trillion.

For life science and healthcare companies, the message is clear: Follow the growth to China.

Rapid growth makes China a highly attractive market for both foreign and domestic companies. Outside of a few emerging countries, the global life science market is stagnating. And even among the major emerging markets, China is by far the largest and fastest growing. But participants in China’s vibrant life science industry already know that China is more than a place to sell products. China is spawning unique opportunities for partnering as domestic companies continue to mature and bring their own, often highly innovative expertise to the global stage.

Proprietary research from ChinaBio analyzing all life science partnerships, including JVs, from 2008 through 2012 shows a very active partnering environment with 338 China-related deals, and that pharma is the most active sector, with 65% of the deals. (See Figure 1.)

![Figure 1. Total Partnerships by Sector](Source: ChinaBio)
Companies are forming wide-ranging relationships, from the more traditional licensing and marketing & distribution deals, which make up 46% of the total partnerships, to much closer relationships including JVs (22%) and co-development and broad collaborations (27%). (See Figure 2.)

Partnering has long been one of the better options with which to enter the China life science market. But beginning in 2010, as China’s healthcare reform policies were creating increased demand for western technology, partnering began growing much more rapidly, with deals more than doubling in the last four years from 46 in 2009 to 101 in 2012. (See Figure 3.)
Much of this growth in partnering came from the pharma sector, showing steady growth each of the last five years. Also, more than half the deals each year were pharma-related. Activity has also increased in the last two years in diagnostics, medical devices and services.

Not surprisingly, cross-border deals made up the vast majority of the partnerships during this period, representing a staggering 87% of the total from 2008-2012. The following sections explore this further as we take a closer look at each sector.

**Pharma Partnerships: Cross-border Deals Dominate**

Domestic pharma have become increasingly interested in bringing innovative technology to China. Government price controls, which have driven the price of generics down by as much as 20-30% per year, and a significant market shift away from generics and traditional Chinese medicine (TCM), have created significant incentives for Chinese companies to seek innovative drugs from western partners. Conversely, stagnant markets in the west and a lack of private and government funding for technology development in the west have made China an attractive target for U.S. and European life science companies, especially pharma and biotechs.

Analysis of ChinaBio’s deal database quantitatively supports this increasing interest in cross-border partnering. The number of pharma cross-border partnering deals has nearly doubled in 5 years, and increased nearly 30% last year alone. (See Figure 4.)

![Figure 4. Cross-border Pharma Partnering Deals by Year (Source: ChinaBio)](image.png)

Moving into the specifics of drug partnerships, an analysis of partnering deals by indication shows that the distribution of the deals generally follows the China’s changing medical needs, with oncology representing the largest segment at 22%. Infectious disease, previously number one, is now a distant second at 16% and cardiovascular is third at 9% (see Figure 5). Similarly, CNS, immunology and inflammation, and metabolic/diabetes are also on the rise.
Figure 5. Pharma Partnerships by Indication (Source: ChinaBio)

Analyzing pharma partnering deals by development stage (excluding JVs), the largest portion, 35%, were targeting marketed assets (see Figure 6). Obviously, partnering an asset already on the market, whether in China or elsewhere, simplifies or eliminates the regulatory hurdles and enables the partners to reap rewards much more quickly.

Figure 6. Pharma Partnerships by Stage (Source: ChinaBio)

Of increasing interest are Phase II and Phase III assets, representing 12% of the total. This is an attractive time to partner an asset as an imported drug in China, as the approval requirements are essentially the same as that for a marketed drug – a 200 patient Phase III trial and a small PK study are all that is required, contingent, of course, on approval in the home market.
While preclinical assets represent 25% of the pharma partnering deals, this is in part a result of western pharma seeking the next great innovative drug in China’s universities and institutes. Based on ChinaBio’s analysis of over 3200 novel molecule patents in China, academic institutions own over 60% of them, but partnering deals with these institutions has yielded only a handful of clinical candidates thus far. On the in-bound side, China domestic companies rarely in-license pre-clinical assets from the west, as this represents a high-risk/high-cost model most domestic companies are unwilling to incur. And if they do a pre-clinical deal, there is usually little if any upfront payment involved, so western companies need to take a long term view.

**Notable Pharma Deals in 2012**

2012 was a very active year for pharma partnering in China, especially cross-border deals, which represented 89% of the partnerships announced last year. It was also a year of some interesting new trends, as illustrated by several noteworthy deals in 2012.

The Evotec-Conba deal is an example of a traditional, western-style cross-border licensing deal in China. Conba Pharmaceutical, a public company based in Hangzhou, received exclusive China rights to EVT 401, a clinical stage asset for inflammatory disease and other indications. Evotec AG, a German drug discovery and development company, will receive a small upfront as well as development and commercial milestone payments with a total value exceeding $95 million, plus tiered double-digit royalties on net sales. Both companies had previously done cross-border partnerships in China with other partners.

**Why Big Pharma are Partnering in China**

Big pharma are very active in cross-border partnering, which may seem counter intuitive. Most are now doing well over $1 billion per year in sales in China, and would already appear to have the sales force, distribution network and financial resources in place to readily access the China market. But China’s complex market structure and regulatory system can sometimes create challenges for western companies that can be more easily addressed with a domestic partner rather than going it alone.

A primary reason for big pharma’s partnering with China domestic companies continues to be market access. China domestic companies often have far better geographic penetration in the 2nd and 3rd tier cities, outside the big pharma’s stronghold in major cities like Shanghai, Beijing and Guangzhou. Second tier cities now represent some of the fastest growing regions in China, as they experience the urbanization cycle and growth of the middle class similar to the big cities. China’s healthcare reform has also focused on improving healthcare to these regions, increasing demand for western life science technologies there.

A related incentive for the big pharma to partner with China domestic companies is access to specific capabilities needed to be successful in China, or even the global market. The Chinese partner may bring strengths in a particular disease area, local regulatory expertise, or even a portfolio of assets, such as the recent generics JVs done by Merck and Pfizer. (See “Big Pharma Generics” below.)
An example of this capabilities-based partnership is the MedImmune-Wuxi joint venture. This partnership was done, at least in part, to accommodate one of the vagaries in China’s regulatory policies. China requires local manufacturing of any novel drug that has not yet been approved elsewhere, making it difficult and expensive for a western company to bring novel biologics to China. So this 50/50 JV between MedImmune, the biologics subsidiary of AstraZeneca, and WuXi AppTec, China’s largest CRO, enables MedImmune to utilize WuXi’s new biologics capabilities to develop and manufacture its novel monoclonal antibody, MED15117, in China.

**Big Pharma Generics**

A developing trend that emerged last year was big pharma’s interest in China’s generics market. Both Pfizer and Merck announced JVs with well-established Chinese companies that previously focused on generics.

The first is the Hisun-Pfizer JV. Zhejiang Hisun Pharma contributed 75 drug products to the JV, as well as $295 million in capital, to gain a 51% majority share. Hisun makes APIs, 80% of which are exported. Because the margins on APIs are thin, Hisun was eager to expand its branded generics business. Pfizer is contributing an additional eight products to the JV’s portfolio and $250 million in capital. The JV will operate out of Shanghai, where it will also set up an R&D operation. For Hisun, one of the major benefits of the JV may also be the exposure to Pfizer’s research and development methodologies and its overall management expertise.

In the Merck-Simcere JV, Simcere settled for a minority 49% ownership. The JV, known as SMSD (Merck is called MSD outside the U.S.), is tightly focused on drugs for cardiovascular ailments, with just six drugs involved at the outset. Simcere contributed two cardiovascular products to the JV and Merck contributed three. China is the initial market for SMSD’s products, but Simcere potentially offers Merck a low-cost manufacturing partner that would allow it to expand into generic markets elsewhere around the world. Although China is no longer the least expensive manufacturing country, it still offers significant cost savings over the west.

**New Breed of China Domestic Companies**

In addition to the established domestic companies in China seeking partnerships with the west, there is a new breed of specialized companies such as Hua Medicine, Ascleitis, BeiGene and Luqa that have been launched by returnees or westerners specifically to commercialize western technology in China. The advantages these companies bring are: 1) their management typically has a long history of doing business in the west, so they better understand the western approach to deal structure; 2) they are focused on commercializing western technology in China, rather than as an additional strategy to producing generics; and 3) they are backed by western investors who understand the longer times to return on investment dictated by novel technology development.

A good example of this is the partnership between Hua Medicine and Roche, announced in late 2011. Hua in-licensed global rights to Roche’s clinical stage glucokinase activator (GKA)
program for diabetes, a molecule that Hua believes could be best-in-class. Hua agreed to pay an upfront fee, milestones and royalties in what would be considered by most to be a straight ahead deal structure. For Roche, this was a unique opportunity to have a trusted partner (Hua’s CEO and co-founder was formerly CSO of Roche’s China R&D group) to develop a potentially valuable asset that was otherwise sitting idle. For Hua, this enabled them to quickly build a clinical-stage pipeline and hopefully have a winning product to bring to the global market.

**MNC-to-MNC China Partnerships**

Another developing trend over the last two years has been the increased interest of MNCs and big pharma in doing China-only deals. The old mantra was “global rights or we’re not interested.” Now, not only are MNCs interested in China-rights for assets in their areas of interest, but last year saw the first MNC-to-MNC China partnership.

In October of last year, AstraZeneca and Ironwood Pharmaceuticals agreed to co-develop and co-commercialize linaclotide, Ironwood’s U.S.-approved novel constipation treatment, for the China market. The $150 million deal is unusual in that it involves two multinationals agreeing to partner an asset solely in China. AstraZeneca will pay $25 million upfront plus up to $125 million in sales milestones. AstraZeneca will be responsible for 55% of the costs and will reap 55% of the profits until a specific sales target is achieved, after which profits will be split on a 50/50 basis.

**Diagnostic Partnerships: Rapid Growth**

While partnerships in the diagnostics sector have not been as robust as that in pharma, there still have been 42 deals announced in the last five years, including four JVs, with all but two being cross-border. Even more striking is that 75% of these deals have occurred in the last two years.

![Figure 7. Diagnostic Partnerships by Segment](Source: ChinaBio)
The most active segment in diagnostic partnerships is diagnostic tests, representing nearly half of the deals (45%), while sequencing is growing very quickly with 29% of the deals, driven primarily by BGI, the Shenzhen-based sequencing giant. (See Figure 7).

BGI, now the world’s largest sequencing company and a prolific cross-border partnership deal maker, accounts for 11 deals in the diagnostic segment plus one JV and one acquisition. BGI’s CEO, Dr. Jun Wang, told ChinaBio® Today in an exclusive interview that BGI is “dream driven,” explaining that it will partner anywhere there are genomics data that may contribute to improving human health. This has led to 11 cross-border partnerships of which four are with major academic institutions, including Johns Hopkins and UC Davis in the U.S. BGI also has commercial collaborations with Merck and GE Healthcare. Last year, BGI also acquired Complete Genomics, as U.S. sequencing equipment company, that gives it access to the latest sequencing technology and helps reduce its dependence on Illumina. This was the first time a China company acquired a public company in the U.S.

Two multinational tools and diagnostics companies also have also been very active in cross-border partnering in China’s diagnostic market. Qiagen has done five deals in the last five years, with three in 2012 alone. Life Technologies also did two deals in 2012.

To tap into China’s diagnostic research capability, Life Technologies, a U.S. provider of research tools which is moving rapidly into diagnostics, forged a partnership with Da An Gene Co., one of China’s largest in vitro diagnostics companies. Announced in early 2012, the JV will develop capillary electrophoresis-based molecular diagnostic detection reagents and instruments, funded with $5.5 million in initial capital.

Qiagen, the Dutch provider of assay and diagnostic technologies, partnered with KingMed Diagnostics to co-market its digene HPV (human papillomavirus) test in China. KingMed is said to be the largest independent chain of clinical laboratory services in China. KingMed will function as a centralized lab, collecting tests from rural areas and smaller hospitals for processing and analysis. Qiagen positioned the agreement as way to increase the penetration of its molecular diagnostics business in China.

Kindstar Diagnostics, a rapidly growing clinical laboratory in China, has in-licensed BG Medicine’s Galectin-3 test for distribution in China. Galectin-3 has been approved in the U.S. to assess patients with chronic heart failure and will be added to Kindstar’s portfolio of CHF tests in China. Kindstar provides esoteric laboratory testing services to over 3,300 Chinese hospitals from its labs in Shanghai, Beijing and Wuhan. BG Medicine is a U.S. developer of cardiac diagnostic tests. Kindstar, while based in China, has strong connections with the U.S. and raised $30 million from Kleiner Perkins, WI Harper, Bard and Morningstar.

The Kindstar and KingMed deals highlight the growing importance of the independent clinical laboratory industry in China, and how its growth is being stimulated by China’s healthcare reform policies.
Device Partnerships: Playing Catch-up

The medical device industry has somewhat lagged the pharma and diagnostics sectors in forming partnerships in China, with 29 formed from 2008 to 2012. But it is coming on strong with 13 device partnerships launched in 2012 alone, including two JVs.

![Pie chart showing device partnerships by segment]

**Figure 8. Medical Device Partnerships by Segment** (Source: ChinaBio)

Looking at the breakdown of device partnerships during the last five years, the largest segment is instruments, with 44% of the deals, followed by surgical (21%) and imaging (14%) (see Figure 8). A significant majority of these partnerships, 86%, were cross-border deals.

Joint Ventures: On the Rise

Analyzing ChinaBio’s deal database, there were 71 life science joint ventures established between 2008 and 2012, or about 21% of the total of 338 partnerships. Pharmaceutical partnerships clearly dominated in the JV space, representing 69% of the total. And the pace of JVs is picking up, with over half of the JVs done in the last two years.

Several of the preceding sections contained examples of JVs, but to add one more of interest, Hutchison MediPharm of Shanghai and Nestlé formed a JV late last year that will take Hutchison’s lead candidate, HMPL-004, to Phase III trials in the U.S. for ulcerative colitis and Crohn’s disease. This is the first cross-border JV to commercialize a novel drug discovered and developed in China for the global market. Hutchison has also signed cross-border partnership deals with Eli Lilly, Janssen/J&J and AstraZeneca.
Conclusion: Succeeding in China

There is an expression among those of us who have spent time doing business in China:

Anything is Possible; Everything is Difficult

In a vibrant, active environment like China, most things are indeed possible. But it can also be difficult to achieve long term success without incurring some scrapes and bruises along the way.

There are basically three ways to enter the China life science market: with a partner, form a joint venture, or on your own. Each has its advantages and disadvantages. (See Table 3.)

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Table 1. Three Approaches to China (Source: ChinaBio)

**Partnering:** Partnering is usually the lowest risk and the lowest cost approach to entering China. It’s also the most widely used. While the upside is usually in the form of a royalty, this still can be very lucrative, especially considering the lower risk. If you’re bringing a marketed product or late stage clinical asset to China, there is also an additional upside: the partner should be willing to pay upfront and milestones and cover all of the cost of development in China.

**Joint Venture:** Forming a JV increases the potential upside, usually in a profit sharing arrangement, but it also increases the risk and costs. And there may be control issues with a JV, even if it is majority owned by the western partner. Selecting the right partner thus becomes even more critical than in a more traditional partnering relationship.

**Do It Yourself:** DIY offers the most control and the most upside, but it’s also the greatest risk and cost. And it’s all up to you. Of course, there are consultants, CROs, law firms, etc., that can be of some assistance, but obviously at some cost. You will get 100% of the profits, but you also incur 100% of the costs.

In China, it all comes down to finding the right partner: a company that understands the local market, that has experience with western companies, and that you can trust to work with you on a long term basis.

Another expression in China is “Step by Step.” The first critical step on your journey to China is selecting the right partner to be by your side.

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Acknowledgements

This report was developed by the ChinaBio Research team based in Shanghai utilizing ChinaBio’s proprietary deal database, ChinaBio® Deals.

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