Translational tidbits

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Yabao goes bold

China-based **Yabao Pharmaceutical Group Co. Ltd.** and **MRC Technology** are jointly going where Western pharmas and academics fear to tread with a preclinical partnership to develop compounds against an undisclosed kinase target for Parkinson's disease.

The boldness is on both sides. According to Michael Dalrymple, MRC Technology (MRCT) had trouble signing up Western companies because they saw too much risk in its PD program to invest at this stage. "We couldn't get traction in the West because although companies thought it was interesting, it was too early stage for them," he said.

He added, "The natural conservatism of Western pharmas came to the fore, but the Chinese were excited about taking this forward."

Dalrymple is director of business development at MRCT, an independent translational organization that handles the technology transfer needs of the U.K.'s **Medical Research Council**.

Likewise, Dalrymple said, there is still trepidation among many academic organizations over partnering with Chinese companies on discovery-stage programs. He put that down in part to concerns that programs will stall because the R&D infrastructure is less well developed in China than in the West. However, he sees this alliance as an opportunity for Yabao to expand its capabilities and for his organization to build trust that he hopes to parlay into more deals in the future.

In the deal announced in late November, MRCT will supply the compound structures, transfer know-how about primary and secondary screening assays and collaborate with Yabao on the preclinical strategy and experimental design. Yabao will carry out the experiments and has committed to invest in its R&D to meet the needs of the project.

Yabao receives exclusive rights to discover, develop and commercialize products from the partnership in China, Taiwan and Hong Kong. MRCT retains rights in all other markets. According to Dalrymple, the deal includes standard milestones and royalties. The partners are not disclosing financial details.

The deal was one of two MRCT recently signed with Chinese companies. This month, the organization also announced a partnership with **Shandong International Biotechnology Park** to develop a product for Alzheimer's disease (AD).

Dalrymple told *SciBX* that he started to look for partners when the PD program hit a roadblock because it needed more resources than MRCT could commit. "It's about leveraging the resource that we couldn't get internally with a partner who shares your vision for it," he said.

He added that there were a host of Chinese companies interested in partnering, many of which had few capabilities and little hands-on experience in "Western-style innovation." But Yabao stood out to MRCT in part because of Peng Wang, Yabao's president of R&D.

Wang—a returnee to China after nearly 20 years in the U.S.—brings to the table drug development experience from four years as CSO at **Simcere Pharmaceutical Group** and four years at **WuXi PharmaTech Inc.** Wang told *SciBX* that he wants to use the PD program as a vehicle to develop Yabao's internal infrastructure and external alliances as part of his overall strategy of bringing Western-style R&D to the company.

Neuro-MAP to new drugs

A partnership of not-for-profit organizations is trying to jump-start drug development for a slate of neurological diseases. The Neurodegeneration Medicines Acceleration Programme (Neuro-MAP) thinks it has found a way to unclog the pipeline by taking in discontinued compounds from pharma libraries, performing early stage research via academic partners and returning successful programs to the pharmas for large-scale clinical trials or late-stage development.

MRCT is spearheading the effort. Mike Johnson, director of MRCT's corporate partnerships, said, "It is an open call to pharma with potential drugs matching the business of the charities involved."

Eight charities specializing in AD, PD, amyotrophic lateral sclerosis (ALS) and other motor neuron diseases have signed on to help identify and fund research on existing compounds that currently reside in pharmaceutical company libraries. The consortium will also look to repurpose existing drugs for other indications that could have an impact on neurological diseases.

The partners include the **Alzheimer's Association**, **Alzheimer's Research UK**, the **Alzheimer's Society**, **The ALS Association**, **The Michael J. Fox Foundation for Parkinson's Research**, the **Motor Neurone Disease Association**, the **Northern Health Science Alliance** and **Parkinson's UK**.

The charities will request proposals from the pharmas and biotechs and select projects based on clinical need and commercial potential. MRCT will solicit an annual investment of \$47 million from pharmas, biotechs, social investors, venture philanthropists and other investors to move promising products toward the clinic.

After identifying projects, Neuro-MAP will seek academic partners to carry out the appropriate research on the available compounds. "Projects will then be developed to an agreed point and handed back to our industrial partner for final steps before going to the market," said Johnson.

Although each project will remain the property of the relevant industry partner, the consortium will receive a share of the revenues from products that make it to market.

Singapore Dx

Singapore is pushing for faster conversion of diagnostic-related IP into market-ready devices as part of the country's Innovation Cluster Program.

Last month, Singapore launched the Diagnostics Development (DxD) Hub as the first of four innovation clusters under the program.

Table 1. Selected public-private partnerships for November 2014. MRC Technology announced a pair of neurology public-private partnerships in November. The organization is leading the Neurodegeneration Medicines Acceleration Programme (Neuro-MAP), which will provide up to £30 million (\$47 million) to identify and advance inactive compounds in pharma libraries for the treatment of neurodegenerative diseases before returning them to the companies to test in clinical trials. MRC Technology also announced a separate licensing and R&D deal with China-based **Yabao Pharmaceutical Group Co. Ltd.** (Shanghai:600351) to discover, develop and commercialize products that target a neurodegeneration-associated kinase to treat Parkinson's disease (PD).

Source: BioCentury Archives; company press releases

Companies	Institutions	Business area	Disclosed value	Purpose
None	Alzheimer's Association; Alzheimer's Research UK; Alzheimer's Society; The ALS Association; The Michael J. Fox Foundation for Parkinson's Research; Motor Neurone Disease Association; MRC Technology; Northern Health Science Alliance; Parkinson's UK	Neurology	£30 million (\$47 million)	Neuro-MAP to identify inactive compounds that could be advanced to treat neurodegenerative diseases
Medgenics Inc. (NYSE-M:MDGN)	The Children's Hospital of Philadelphia	Pharmaceuticals	\$5 million plus research funding, milestone payments and royalties	Accelerate the development of new therapies for pediatric rare and orphan diseases
Abide Therapeutics Inc.	University of Oxford	Inflammation	Unavailable	Explore the therapeutic potential of serine hydrolases
Accelerate Diagnostics Inc. (NASDAQ:AXDX)	Centers for Disease Control and Prevention	Diagnostics	Unavailable	Develop tests for the rapid analysis of antibiotic-resistant biothreat agents
Astellas Pharma Inc. (Tokyo:4503)	Dana-Farber Cancer Institute	Cancer	Unavailable	Research and develop small molecule inhibitors of oncogenic K-Ras (KRAS) for the treatment of various cancers, including lung cancer
Edge Therapeutics Inc.	St. Michael's Hospital	Neurology	Unavailable	Research and discover new therapeutic approaches to treat acute neurological conditions resulting from neurovascular instability
Encycle Therapeutics Inc.; Merck & Co. Inc. (NYSE:MRK)	Institute for Research in Immunology and Cancer—Commercialization of Research; MaRS Innovation; University of Montreal	Autoimmune disease	Undisclosed	Conduct lead optimization of Encycle's integrin $\alpha_4\beta_2$ inhibitors for inflammatory bowel disease (IBD)
Foundation Medicine Inc. (NASDAQ: FMI)	Robert H. Lurie Comprehensive Cancer Center of Northwestern University; Northwestern Medicine Developmental Therapeutics Institute	Cancer	Unavailable	Assist with development of oncology therapeutics and expand the clinical utility of Foundation Medicine's genomic profiling technologies
GlaxoSmithKline plc (LSE:GSK; NYSE:GSK)	The University of Edinburgh	Neurology	Unavailable	Research on new treatments for brain diseases, with a focus on regenerating myelin around nerve cells
None	California Institute for Regenerative Medicine; Medical University of Warsaw	Gene/cell therapy	Unavailable	Establish research initiatives to advance stem cell therapies
Nuvilex Inc. (OTCQB:NVLX); Austrianova Singapore Pte. Ltd.	Ludwig Maximilians University of Munich; University of Technology, Sydney; University of Veterinary Medicine, Vienna; Vorarlberg Institute of Vascular Investigation and Treatment	Endocrine/metabolic disease	Unavailable	Diabetes Consortium to develop Nuvilex's treatment for insulin-dependent diabetes
OnCore Biopharma Inc.	Baruch S. Blumberg Institute of Living Science	Infectious disease; cancer	Unavailable	Research HBV and liver cancer
OncoSec Medical Inc. (OTCQB:ONCS)	University of California, San Francisco	Cancer	Unavailable	Evaluate the safety, tolerability and efficacy of the combination of Keytruda pembrolizumab and OncoSec's ImmunoPulse in metastatic melanoma
ValiRx plc (LSE:VAL)	German Cancer Research Center	Cancer	Unavailable	Develop targeting technologies to improve early detection and diagnosis of various cancers and new GeneCE compounds to enhance treatment outcomes
Yabao Pharmaceutical Group	MRC Technology	Neurology	Unavailable	Discover, develop and commercialize products against a kinase target for treatment of PD

The hub will receive S\$60 million (\$45.7 million) over 5 years and will be led by the **Agency for Science, Technology and Research (A*STAR)** through its technology transfer arm, **Exploit Technologies Pte. Ltd.**

The bulk of the money will be used to fund projects picked up by the hub.

The DxD Hub will connect clinicians, researchers and entrepreneurs with industry professionals, and it will start by supporting projects to develop diagnostics with high growth potential including immunochemistry products, point-of-care devices, molecular diagnostics and products to address indications prominent among Asian populations or that respond differently in individuals with an Asian phenotype.

“We are really looking to build a more efficient medical device ecosystem in Singapore,” said Sidney Yee, CEO of the DxD Hub. “Right now, there’s a lot of wastage of time and resources in the product development process.”

Yee said that the hub’s goal is to streamline the development process and decrease the time it takes to bring new diagnostic products to market.

Project proposals will be sourced locally and abroad and evaluated by the hub’s selection panel for perceived medical value, taking into account the competitive landscape, regulatory hurdles, commercial attractiveness and commercial viability.

“We’re not interested in me-too products,” Yee said. “We want products that can do something better than what is currently out there.”

For selected projects, DxD Hub will work with the idea’s originator to do product realization, engage in business development activities and bring together the appropriate industry partners to speed up the process of getting the product to market.

Yee said that the hub has around a half dozen active projects and expects to have 12–15 on a rolling basis once operations are fully ramped up. Current projects include the development of a device to enable early detection of gastric cancer, a prognostic test for breast cancer and an algorithm for an imaging platform that differentiates between different types of fibrosis. The first products developed at the hub are expected to reach market next year.

Yee said that the impact of DxD Hub could be assessed on multiple metrics including the number of products getting to market, whether new products change standard clinical practice or improve patient outcomes, the number of companies that diversify their business into medical diagnostics and newco formation in the space.

Prior to launch, DxD Hub lined up a series of partners among local healthcare and academic centers including **Singapore Health Services**, the **National University Health System**, the **National Healthcare Group** and the **Singapore Clinical Research Institute**. In addition it has recruited a series of industry partners including **BGI**, **Johnson & Johnson’s J&J Innovation unit**, **Thermo Fisher Scientific Inc.** and a basket of six small and medium enterprises (SMEs) or start-ups.

Public-private partnership roundup

In November, gene therapy company **Medgenics Inc.** and The Center for Applied Genomics at **The Children’s Hospital of Philadelphia** partnered to accelerate the development of new therapies for pediatric rare and orphan diseases. The partners will work together to identify targets and advance programs through clinical development.

Under the deal, Medgenics gets a four-year, exclusive, worldwide license to use samples in the Center for Applied Genomics’ pediatric biobank for the development and commercialization of new therapies and diagnostic targets for rare and orphan diseases. Medgenics will prototype preclinical models of potential therapies using its Transduced Autologous Restorative Gene Therapy (TARGT) platform and commercialize resulting products.

The Children’s Hospital of Philadelphia received \$5 million up front and is eligible for research funding, undisclosed clinical milestone payments and low single-digit royalties on sales of products developed under the collaboration. Medgenics plans to advance five programs using TARGT technology into the clinic next year.

Public-private partnership activity in November was otherwise concentrated in the cancer and neurology spaces (see **Table 1, “Selected public-private partnerships for November 2014”**).

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COMPANIES AND INSTITUTIONS MENTIONED

Agency for Science, Technology and Research, Singapore

The ALS Association, Washington, D.C.

Alzheimer’s Association, Chicago, Ill.

Alzheimer’s Research UK, Cambridge, U.K.

Alzheimer’s Society, London, U.K.

BGI, Shenzhen, China

The Children’s Hospital of Philadelphia, Philadelphia, Pa.

Exploit Technologies Pte. Ltd., Singapore

Johnson & Johnson (NYSE:JNJ), New Brunswick, N.J.

Medgenics Inc. (NYSE-M:MDGN), Wayne, Pa.

Medical Research Council, London, U.K.

The Michael J. Fox Foundation for Parkinson’s Research, New York, N.Y.

Motor Neurone Disease Association, Northampton, U.K.

MRC Technology, London, U.K.

National Healthcare Group, Singapore

National University Health System, Singapore

Northern Health Science Alliance, Manchester, U.K.

Parkinson’s UK, London, U.K.

Shandong International Biotechnology Park, Yantai, China

Simcere Pharmaceutical Group, Nanjing, China

Singapore Clinical Research Institute, Singapore

Singapore Health Services, Singapore

Thermo Fisher Scientific Inc. (NYSE:TMO), Waltham, Mass.

WuXi PharmaTech Inc. (NYSE:WX) Shanghai, China

Yabao Pharmaceutical Group Co. Ltd. (Shanghai:600351), Beijing, China