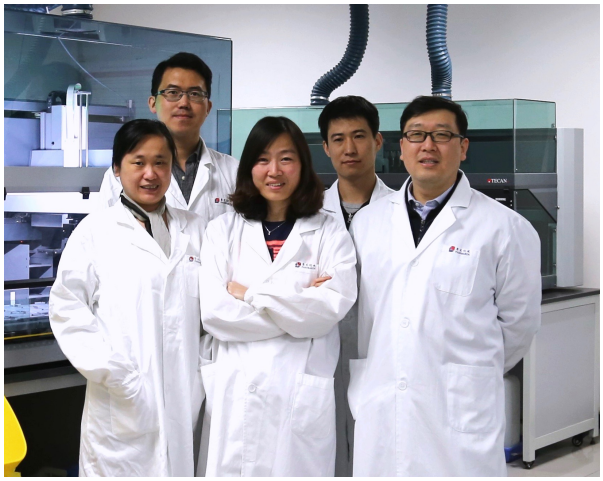
康龙化成 PHARMARON 5



Dr. Fang He (center) and members of her in vitro biology team.

Meet Dr. Fang He

There's a Chinese proverb that comes to mind when Pharmaron's Executive Director of *in vitro* biology, Fang He, thinks about her team—yi mu nan zhi (一木难支). The translation is that it takes more than one post to support a building. This bears a similar meaning to Helen Keller's famous quote, "Alone we can do so little, together we can do so much." As one of the first members of Pharmaron's *in vitro* biology group, Fang knew that establishing a strong team would ensure the success of her department.

Fang recalls the excitement she experienced the day the first equipment arrived (an EnVision plate reader). Now ten years later, Fang still gets excited to see the new equipment that fills Pharmaron's biology lab, such as the Echo dispenser and a Biacore system.

The *in vitro* biology team works closely with many other Pharmaron teams, including *in vivo* pharmacology, medicinal chemistry and DMPK. Fang recalls a recent collaboration in which the partner's goal was the discovery and development of an orally available and selective first-in-class enzyme inhibitor for the treatment of CNS diseases. Since most of the enzymes were not available, the *in vitro* biology team started from gene engineering and protein expression, followed by customized assay development/validation and weekly screening. The timely assay development and robust screening of novel compounds, together with other functional teams at Pharmaron and our partner, enabled the project team to identify multiple novel structure classes of leads for a second generation of compounds, which led to successful PCC delivery.

In addition, Fang knew it was important to develop a tailor-made, automated system for compound handling and management. Fang is proud of Pharmaron's compound handling and management system, as it offers high precision, accuracy and reproducibility with strong emphasis on IP protection.

Fang credits her team's success to their approach to projects. With every team member knowing the full scope of each project, efficiency has improved, and as a result, project timelines have reduced. Combined with open communication with partners and their positive attitude – Fang is proud of her team, and it's why "yi mu nan zhi" is so fitting.

About Dr. Fang He

Dr. Fang He is Executive Director of *in vitro* Biology. She joined Pharmaron in 2008 and currently leads the *in vitro* Screening Center. She obtained her B.Sc. from Beijing Normal University and her Ph.D. in pharmacology and cell biology from a joint program from the University of Louisville and Beijing Normal University. Dr. He's postdoctoral training was in pharmacology and toxicology at the School of Medicine, University of Louisville (US). She continued her research at Beijing Normal University in the areas of biomarker identification and validation in cancer patients. In her spare time, she likes to run every day with her husband and her family's tradition is to make dumplings together every weekend.

2 Integrated Clinical Development Services

A critical step in clinical development is the human ADME study. Metabolite profiling and structural identification of human metabolites is often challenging, but Pharmaron has extensive experience in helping our partners meet their objectives for these studies. When the ^{14}C dose and/or exposure levels are extremely low, this adds another level of complexity due to sensitivity issues. However, Pharmaron's integrated services provide a solution.

With seamless transfer of methods between sites, quantitative metabolite profiling of low level samples (usually plasma) can be performed by Accelerator Mass Spectrometry (AMS). Then, structure elucidation can be performed by our metabolite identification group. For example, we recently helped Celgene-Receptos achieve their metabolite profiling/ identification objectives for their ^{14}C human metabolism study.

Written with permission by Celgene-Receptos.

4 Supporting Future Leaders

In February 2018, Pharmaron announced it will grow its partnership with Shanghai Institute of Organic Chemistry (SIOC), Chinese Academy of Sciences. Pharmaron will donate $1.2 million to SIOC over the next six years, with the goal of supporting Ph.D. chemists from around the world to conduct their post-doc training at SIOC. Since 2011, Pharmaron has partnered with SIOC to offer outstanding Ph.D. graduates the opportunity to conduct their post-doctoral research at other world-class laboratories. Pharmaron also works with several universities in China to recognize chemistry students who are excelling with their undergraduate and/or graduate degree.

"It is our honor to help future chemists and scientists get the training they need so they can contribute to the advancement of science and technology and help our industry grow," said Dr. Boliang Lou, Chairman and CEO.

5 *in vitro* Biology: New Model Development

Pharmaron's *in vitro* Screening Center is a critical component for advancing drug discovery programs from initial conception to preclinical candidate selection. Key services include HTS, primary/secondary cellular screening, target class focused screening and selectivity/liability screening. A two-pronged approach is applied to enhance our high-quality data delivery to partners: an extended list of routine screening assays to choose off menu and a strong track record for the development of customized screening assays.

Pharmaron's Screening Center is exceptional at developing and validating program-specific screening assays to fit our partners' screening strategy. The team is able to deliver high quality screening results in a timely manner and move identified hits seamlessly into the *in vivo* validation stage. Integrated with our other discovery platforms, Pharmaron's *in vitro* screening team reduces cycle time and contributes to rapid advancement of our partners' programs, from lead identification through lead optimization and preclinical candidate selection.

3 A Learning Journey

"Pharmaron will have no future if we stop learning" is a message often delivered by senior Pharmaronians.

On any given day, you'll see teams meeting to discuss new research and findings. In addition, numerous learning opportunities are offered in-house, such as weekly seminars, international annual scientific symposia and Pharmaron College. Each opportunity reflects Pharmaron's long-term commitment to excellence in science.

In February 2018, twenty employees completed their Ph.D. program training at Pharmaron College. To date, 97 Pharmaron employees have successfully completed their Ph.D. and M.Sc. programs at the College since its inception in 2011.

Pharmaron College offers its own designed Ph.D. and M.Sc. chemistry programs. These one- to two-year programs provide systematic advanced studies. The goal is to identify and develop talents in Pharmaron through an intense training program, which strengthens the employee's knowledge of the most advanced chemistry technologies (i.e. computer-aided drug design) as well as improve their mindset, their approach to problem-solving and their leadership skills.

In a graduation speech made by Yuquan Liu, he pointed out how supportive the team was as they went through their learning journey. He noted that in addition to learning new chemistry techniques and methodologies, they learned about themselves and how they can better balance busy schedules, as well as stay focused on a goal.

"Graduation is not the end, it's the beginning," Yuquan said. "We can now take this knowledge to make greater contributions."

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