

# Tech Brings Suzhou's Cultural Heritage Alive



## Tech+Culture

By Staff Reporters



An aerial view of the Tongli Ancient Town in Suzhou, Jiangsu province. (PHOTO: VCG)

**Editor's note:**  
China's traditional culture, nurtured by its 5,000-year-old civilization, is the root and soul of the Chinese nation. Regions across China have nurtured it in accordance with the spirit of the times to better serve socioeconomic development and ensure a high-quality life for the people. In this column, our reporters visit many regions in the country to showcase the preservation and inheritance of intangible cultural heritage for readers to have a glimpse of the creative transformation and innovative development of the fine traditional Chinese culture in the modern era.

Old streets are the carriers of a city's history, and ancient towns record the evolution of residents' way of life, which makes them valuable cultural heritages.

How can they be protected and promoted so that residents can cherish their memories? How can heritage be brought alive and its charm rejuvenated? Cities rich in cultural heritage are exploring new paths to do so.

In recent years, Suzhou in Jiangsu province in east China has utilized the spatial resources of the ancient city. It has improved the living conditions of

the people by repairing and protecting their houses while developing historical and cultural areas.

### Innovations in a water town

At the Tongli Ancient Town in Suzhou's Wujiang district, pavilions, towers and gurgling streams combine to produce a unique cultural charm.

Tongli is a typical water town in the lower reaches of the Yangtze River. While restoring cultural relics, it has followed the principle of not changing their original state. During the restoration, original materials and crafts are used as much as possible to

preserve the authenticity of the ancient buildings.

Zhou Chunhua, director of the Cultural Relics Protection and Management Institute in Wujiang, told *Science and Technology Daily* the cultural relics protection team is using new technologies to repair ancient buildings.

"Infrared thermal imagers are used to detect damage. Combined with detailed historical data, we scientifically protect the authenticity of heritage," Zhou said.

### A night tour experience

"The Humble Administrator's Gar-

den" is a classical garden built in the 16th century by an imperial censor, Wang Xianchen. It was said that Wang intended to build a garden after retirement and just plant trees and cultivate vegetables there. He thought it was a simple life led by a humble man like him, hence the name of the garden.

Nowadays, the garden has become a popular tourist attraction, bustling with people during the day. At night the excursions also continue, but the night tour is a different magical experience.

The night tour program was launched in December 2020. Visitors see the garden immersed in light and shadow under the moonlight, the prime areas being the central garden and an old mansion. The garden comes alive through the innovative use of lighting and sound technologies, which recreates the exotic birds seen in ancient paintings flying, the tree branches swaying and rivers flowing.

"The cloud-controlled LED circular outdoor grille screen, pneumatic lifting devices for lighting, and lighting systems for ancient buildings used in the project are all industry firsts and patented," said Li Wenle, in charge of the project.

"Regarding the relationship between the protection and utilization of Suzhou's historical districts, we adhere to the principle of utilizing cultural relics and buildings on the basis of protection, and strengthening protection through utilization, in order to bring cultural relics to life," said Wang Yongfa, an official at the Gusu Ancient City Protection Committee.

# Collaborative Frontiers: Molecular Cell's Journey in China

By Brian Plosky



Brian Plosky. (COURTESY PHOTO)

While I have been a scientific editor for 17 years and editor-in-chief of *Molecular Cell* for more than five years, I had previously never traveled to China.

I have interacted with many exceptional Chinese scientists working either in China or other countries, but it is clear that in the past several years both the quantity and quality of molecular biology research happening in China has grown and continues to grow. But seeing it firsthand and getting to meet in person, instead of virtually, helped me to better understand the perspectives of scientists in China and to consider the opportunities for future collaboration.

On my first visit to China this January, I was able to visit three cities, Shanghai, Hangzhou and Beijing to meet with over 65 scientists at the Institute of Biophysics, Chinese Academy of Sciences (CAS), Center for Excellence in Molecular Cell Science, CAS (Shanghai Institute of Biochemistry and Cell Biology), Westlake University, Tsinghua University and Peking University.

I also had the opportunity to present at each institute and share what type of science *Molecular Cell* is interested in publishing and how scientists in China can work with our editors and Cell Press more broadly to publish their most exciting work. The research that I learned about and the facilities that I saw were impressive. It is clear that efforts to recruit top scientists and support their research are paying off, with some great work in structural biology, genomics, proteomics, and cell biology using cutting-edge technology.

*Molecular Cell* was launched in 1997 as a home for "the best molecular biology" and as a companion to the flagship journal of Cell Press, *Cell*. Over the years it has maintained this identity and flourished as a high-impact journal where researchers aim to publish some of their most important discoveries.

The initial concept for the journal was somewhat similar to our recently launched Multi-Journal Submission Platform, where authors can choose to have their papers considered by multiple journals at once. It has always been possible for authors to submit papers to *Cell* and opt to have their papers also considered for *Molecular Cell*, but over time the editorial teams grew and became separate entities to allow *Molecular Cell* to find its own path.

Many fields consider the journal to be a home for some of their most important discoveries. Some of the papers we have had the privilege to publish could be considered "foundational" and guide the direction for future research on mechanisms of gene expression, genome maintenance, protein quality control, metabolism, cancer, inflammation, immunity and more. These

basic discoveries have been part of the framework for the development of tools (such as for genome engineering or targeted protein degradation), or for treatment of disease. Some fields, like those centered around the production, maintenance, and turnover of DNA, RNA, and proteins will generally have a home at *Molecular Cell*.

That said, as more established fields mature and as other fields show the potential for new mechanistic exploration, the topics which we have published have shifted and will continue to do so. Moving forward, our focus with continue to be on understanding biology at the level of molecular mechanisms, while also going beyond these mechanisms to share important discoveries, technologies and resources.

So much of the excellent science that I learned about on this visit fits well with the aims of *Molecular Cell*, and our goal of publishing papers that help maintain a cycle between exciting biological discoveries, understanding the molecular mechanisms behind the biology, and the development of new tools that can be used both for future discovery and exploration of mechanisms. Based on my meetings, I foresee that there will be further growth in the number of papers we publish from China and increased interactions between our editors and scientists in China.

For example, in partnership with Peking University, we are co-organizing Cell Symposia: Functional RNAs. This meeting will strengthen our ties with leaders in the field from China and help share some of the great science happening in China with researchers from around the world. It will also present another opportunity for Cell Press editors to visit more researchers in China.

Also, I hope that some of the graduate students and postdocs, who attended my presentations and learned about the responsibilities of scientific editors, might be inspired to consider this as a career option. While Cell Press already has several editors based in China, we'll certainly be looking for more in the near future.

Brian Plosky is the editor-in-chief of *Molecular Cell*, and has worked at Cell Press since 2006.

# ZGC Forum: A Prime Innovation Platform

By CHEN Chunyou

Themed "Innovating for a Better World" and showcasing new trends in sci-tech gains, the 2024 Zhongguancun Forum (ZGC Forum) is taking place in Beijing from April 25 to 29. It features five major sections: forums and meetings, technology trading, unveiling of achievements, and competitions in cutting-edge fields.

Nearly 120 events are planned for the five-day event this year, and 100 eminent scientists, including Nobel laureates and Turing Award winners, have been invited to engage in discussions on open innovation and explore opportunities for mutual development.

Meanwhile, a total of 60 parallel forums revolving around scientific frontiers, new quality productive forces, talent development and sci-tech governance, are being hosted by national and local government departments and inter-

national organizations during the event.

The 2024 ZGC Forum emphasizes frontier exploration, Chen Jiachang, vice minister of science and technology, told a press conference. In the run up to the forum, a series of meetings and activities were held focusing on frontier areas of science and technology, such as AI, life science and new materials. Meanwhile, a batch of the latest major sci-tech achievements is going to be released.

Another highlight of the forum is its emphasis on sharing sci-tech achievements. Through the international technology trading conferences and sci-tech frontier competitions, the forum provides platforms for sharing and trading of more than 3,000 sci-tech achievements from more than 40 countries and regions, in such fields as carbon peaking and carbon neutrality, medical health and clean energy.

Given the world's increasing attention to the AI sector, April 27 has been

set as the AI Theme Day this year. Several special forums are being held, covering topics such as large-scale AI models and embodied AI.

Launched in 2007, the ZGC Forum highlights opening-up and cooperation.



Visitors interact with a bionic humanoid robot at the Zhongguancun International Innovation Center in Beijing, April 24, 2024. (PHOTO: Beijing Municipal Science & Technology Commission)

This year, government representatives, international sci-tech organizations, scientists, innovative enterprises and investors are widely invited to build exchange platforms, aiming to inject new vitality into global sci-tech cooperation.

# Upsurge in China's Innovative Drugs

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"The year 2023 can be called a milestone year for the overseas launch of domestically produced innovative drugs. Not only did an unprecedented number of drugs go overseas, but also several significant breakthroughs were achieved,"

said Li Ning, CEO of Junshi Biosciences.

This momentum has persisted in 2024, with Chinese pharmaceutical companies securing 18 out-licensing deals in January alone, marking a 260 percent increase compared to the same period in 2023.

### Fostering a supportive environment

Unlike generic drugs, innovative drugs have a long development cycle, require high investment and carry high risk, according to Song Ruilin, executive president of the China Pharmaceutical Innovation and Research Development

Association. Song said developing innovative drugs demands sustained support and a conducive ecosystem.

China has prioritized developing the healthcare industry, emphasizing enhancing drug accessibility. Christophe Weber, CEO of Takeda Pharmaceuticals, said, "We have seen a huge modernization of the pharmaceutical market, with many more innovative medicines being approved and reimbursed."

"Researchers from about 70 institutions with more than 100 projects carried out their experiments here every year, from 8 am to 12 pm," said Xi Chuanying, deputy director of Operation and Experimental Measurement Department of the laboratory.

SHMFF is open to scientists worldwide. By the end of 2023, it had provided over 200 scientific and educational institutions at home and abroad with the experimental conditions for cutting-edge research in multiple disciplines, including physics, chemistry, materials, life sciences and engineering, helping to produce nearly 2,500 research papers.

# Steady High Magnetic Field Facility Breaks Records

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The bitter disc is densely covered with tiny holes to allow deionized cooling water to flow through it. Therefore, it must be accurately placed, otherwise the blockage of the cooling holes will cause the magnet to fail to dissipate heat in time, which can cause the entire magnet to burn, according to Zhang.

"To figure out what materials to use and how much aperture to open, we had to carry out theoretical analysis and sim-

ulation, and then start construction," said Fang Zhen, a researcher in the laboratory recalling the challenges during the formation process.

One example is that the required "copper-silver alloy" material was extremely scarce at that time, and much effort was used to obtain this material.

"Every step was difficult, and the development of the measurement system was even more so," said Kuang. "To achieve the ability to sift out weak use-

ful information from the complex electromagnetic environment in which the magnet operates, is like looking for a needle in a haystack."

### Open to the world

Over the past 100 years, more than 10 Nobel Prizes have been awarded for the researches related to high magnetic fields. Besides China, the United States, France, the Netherlands and Japan have built steady-state high magnetic field experimental devices.

*Molecular Cell* has been one of my favorite journals since I was a graduate student. It publishes studies on the molecular mechanisms of basic cellular processes, including DNA replication, transcription, translation, signal transduction, cell cycle, cell death, autophagy and cell metabolism. It is particularly interested in research that addresses long-standing questions, opens new research avenues, brings unexpected discoveries and alters the way we think about biological processes.

*Cell* publishes findings of unusual significance across a wide range of experimental biology, including but not limited to cell biol-

ogy, molecular biology, neuroscience, immunology, cancer, human genetics, systems biology, signal transduction, and disease mechanisms and therapeutics, offering a broader perspective.

As a companion to *Cell*, *Molecular Cell* holds an esteemed reputation globally. Since its establishment in 1997, it has published numerous important and landmark scientific research advancements, making it an essential academic resource for life science researchers.

—Li Zhuang  
Associate professor at the School of Life Sciences, Hubei University.