University of Chinese Academy of Sciences – Paris Descartes University/Paris Diderot University

Dual PhD degree
A doctoral program designed for young scholars to pursue doctoral degree under supervision of a scientist affiliated with Institut Pasteur of Shanghai (IPS), Chinese Academy of Sciences.

A HDR framework: IPS supervisors will be accorded a HDR qualification from both PDeU and PDiU. Selected candidates will register at both UCAS and PDeU or PDiU, and conduct research mainly at IPS.

<table>
<thead>
<tr>
<th>The Program</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Focus</strong></td>
</tr>
<tr>
<td>Basic and translational research on infectious diseases (pathogens science, immunology and vaccinology)</td>
</tr>
<tr>
<td><strong>Degree</strong></td>
</tr>
<tr>
<td>Both universities (UCAS and PDeU or PDiU) will award a degree of Philosophy Doctor (PhD) separately to the candidate*</td>
</tr>
<tr>
<td><strong>Scholarship</strong></td>
</tr>
<tr>
<td>Competitive scholarship through a selective procedure by UCAS, IPS and PDeU/PDiU (Sino-French evaluation committee)</td>
</tr>
</tbody>
</table>

* Subject to satisfactory completion of program requirements
Who should apply

Candidates interested in the fields of Life Sciences:

Microbiology and infectious diseases, host responses (immunology and inflammation), prophylaxis (vaccines) and therapeutics.
University of Chinese Academy of Sciences
and
Institut Pasteur of Shanghai

WHO ARE WE ?
Chinese Academy of Sciences is China’s lead national scientific institution in natural sciences and high-tech development and supreme scientific advisory body.

Mission

“National Team”
representing the highest standards of S&T in China

“Big School”
training next generation scientists and engineers

“Think Tank”
advising government on major S&T issues

“Pioneer”
facilitating the reform of China’s R&D system

“Engine”
driving national technology innovation
Chinese Academy of Sciences

- 106 research institutes
- 800 members
- 92 foreign fellows
- 3 universities
- 70,000+ students

Across China

Headquarters are in Beijing, and 12 branch academies in key Chinese cities.

106 institutes across the country, with research and development covering all fields of science and technology.
CAS tops the global institution list of the Nature Index 2017. CAS has maintained the No. 1 institutional contributor of high-level science papers for five years in a row from 2012 to 2016.
A higher education institution focusing on graduate education.

It has 11721 academic supervisors including 283 CAS Members and 6,432 doctoral supervisors.

Headquartered in Beijing with 4 campuses.

Connecting with 5 education centers in Shanghai, Guangzhou, Chengdu, Wuhan and Lanzhou.

Backed by over 100 institutes of the Chinese Academy of Sciences (CAS) located in more than 20 provinces and municipalities throughout China.
UCAS enrolls more than 10,000 students annually.

At present, it has 160,615 graduate students, 77,956 are PhD candidates.

The number of international students is 1571, including 1011 doctoral students which is ranking first in China.

Strong international potential:
- Sino-Danish Program
- CAS-TWAS President’s Fellowship Programme
- CAS “The Belt and Road” Master Fellowship Programme
**Mission:** Translating excellence in research into benefits for public health

Institut Pasteur Shanghai (IPS) is an independent, non-profit life sciences institute to address public health issues in China and the Asian region. IPS creates synergies between the Institut Pasteur Network and CAS institutions, leveraging Shanghai as one of Asia’s leading business and technology hubs.

**Research focus:** Infectious disease ranging from viral hepatitis, HIV, respiratory viral infections, emerging viral infections, oncogenic viruses, and other non-viral pathogens. IPS is also a privileged partner of the new BSL4 national laboratory in Wuhan

**Strategic goal:** Together with its academic and industry partners, IPS aims to develop prototype product in the field of pathogen diagnostics, vaccines and other forms of therapeutics.
IPS devotes itself to provide knowledge, strategies and solutions to the prevention and control of major infectious diseases, both globally and nationally. To fulfil the mission, IPS strives to make breakthroughs and innovations in molecular pathogenesis, immune recognition and responses, and advanced immune therapies, three pillars in fighting infectious diseases.

**Aim 1**
Interdisciplinary research to understand pathogen-host interactions of viral, bacterial, fungal and parasite infections. Significant impact to the field of immune recognition and response.

**Aim 2**
Vigorous research and development of antibodies and vaccines in fight against HFMD, flu, dengue and viral hepatitis. Development of active preclinical and clinical study programs.

**Pathogens Science**
- Immunology
- Vaccinology
- A world-class research and development institution

**A more active player in support of “Health China 2030” Initiative**

**A Significant Contributor to One Belt One Road One Health**
IPS – Scientific Advisory Board

Philippe Kourilsky
College de France
French Academy of Sciences

Félix Rey
Institut Pasteur
French Academy of Sciences

Eric Vivier
Marseille Med Sch
French National Academy of Medicine

Amalio Telenti
Human Longevity
Swiss Academy of Medical Sciences

Zihe RAO
Tsinghua U
Chinese Academy of Sciences

Hongbing SHU
VP, Wuhan U
Chinese Academy of Sciences

Feng SHAO
DD, NIBS
Chinese Academy of Sciences

Fusheng WANG
302 Hospital
Chinese Academy of Sciences
IPS - Facts and Figures

Faculty and students

- 25 professors; 18 associate professors
- 25 PI+3 visiting professors
- 26 postdocs (11 foreign)
- 200 Graduate students (UCAS 123, Joint programs 66, International 11)

Research and results

- 138 projects
- 33 patents
- 89 published papers.
- Over 20 technology transfer agreements* in 2016
- 100 million RMB (~13 million Euros) worth of total contract

* Including know-how transfers, patent licensing, technology trade-in investments and cooperation developments
Research has to address the needs of disease prevention and control.
### Patents and licensing

<table>
<thead>
<tr>
<th>T/T and Licensing</th>
<th>Status/type</th>
<th>million $</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anti-HFMD drug</td>
<td>Licensing/phase III</td>
<td>2.7</td>
</tr>
<tr>
<td>Multivalent Norovirus vaccine</td>
<td>Licensing/phase I (2017)</td>
<td>3.1</td>
</tr>
<tr>
<td>HCV nAbs</td>
<td>Contracted research</td>
<td>1.8</td>
</tr>
<tr>
<td>HCV vaccine</td>
<td>Contracted research</td>
<td>1.2</td>
</tr>
<tr>
<td>EV71 vaccine</td>
<td>Licensing</td>
<td>0.7</td>
</tr>
<tr>
<td>Rabies virus vaccine</td>
<td>Contracted research</td>
<td>0.3</td>
</tr>
<tr>
<td>ZIKA vaccine</td>
<td>CR/Licensing (2019 phase I)</td>
<td>6.1</td>
</tr>
<tr>
<td>Anti-Malaria drug</td>
<td>CR/New Drug 1.5/ IND (2017)</td>
<td>12.0</td>
</tr>
<tr>
<td>Broad Breath Influenza vaccine</td>
<td>Contracted Research</td>
<td>2.3</td>
</tr>
<tr>
<td>EV71 Humanized nAb</td>
<td>Licensing</td>
<td>2.6</td>
</tr>
<tr>
<td>Omic-based CTC Diagnosis of Lung Cancer Metastasis</td>
<td>CR/Licensing (2019 market)</td>
<td>13.0</td>
</tr>
</tbody>
</table>

**Graph:****

- **Patent applications (China)**
- **PCT applications**

**Table:**

<table>
<thead>
<tr>
<th>Year</th>
<th>Patent applications (China)</th>
<th>PCT applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>209</td>
<td>2011</td>
</tr>
<tr>
<td>2012</td>
<td>2013</td>
<td>2014</td>
</tr>
<tr>
<td>2015</td>
<td>2016</td>
<td>2017</td>
</tr>
</tbody>
</table>

**Note:** The table and graph represent the number of patent applications and PCT applications from 2009 to 2017.
Resources and coalition

**CAS Key Lab of Molecular Virology and Immunology**
- Pathogens
- Immune pathology
- Diagnostics, antibodies and vaccines

**Translational Medicine**
- Guangzhou Women and Children's Hospital
- Yun'nan Institute of Entomology

**Charity and Philanthropy**
- Bonke Foundation
- Bettencourt Schueller Foundation

**Venture Capital /Angel Fund**
Shuobai Investment Holdings
(annual credit limit 200 million RMB)

**Innovation Platform**
- IPS- Shanghai Serum Biotech Joint R&D Center
  (2 million RMB/year)
This 2-week course will focus on infectious diseases caused by major pathogens including viruses, bacteria, parasites and fungi, relevant to the East Asia and Southeast Asia regions. The teaching cover essential molecular mechanisms of pathogen life cycle and host responses, epidemiology of infections and functional genetics, novel technologies of pathogen diagnostics and discovery, and systems biology of pathogen infections.

The panel of professors is composed by world-leader scientists from Europe, Africa, Asia and North America. The 2018 course will host 30 students from more than 20 nationalities selected among more than 100 applications.
Educational systems in both countries

- **Doctorate**: 3-4 years
  - Research thesis

- **Master**: 2-3 years
  - Courses (1 year) + research thesis (1-2 years)

- **Bachelor**: 4 years

---

- **Doctorate**: 3 years
  - Research thesis

- **Master**: 2 years
  - Courses (1 and ½ year) + internship (½ year)

- **Bachelor**: 3 years
Joint PhD Programs

168 graduate students registered to UCAS (55 masters, 99 PhD candidates; 14 internationals)

Education in IPS

Average IF by graduates

France 7
Russia 1
India 1
Pakistan 1
Iraq 1
Togo 1
Cameroon 1
Nepal 1
Career perspectives

177 Graduates (130, PhD graduates; 47, Master graduates)-till June 2018

Master graduates

- PhD: 12
- Universities and institutions: 26
- Enterprise: 8
- self-employed: 1

PhD graduates

- Postdoc and research scientist: 20
- Universities and institutions: 83
- Enterprise: 27
“I’ve been a Master student since 2015 with the University of Chinese Academy of Sciences (UCAS) and pursuing my research project in the unit of Arboviruses of Institut Pasteur of Shanghai (IPS). It is very stimulating to work in an international environment with cultural diversity. As public health is inevitably becoming global, I believe that this work environment is preparing me for my future career.

Many units collaborate on common projects, top-level experts come to IPS to give lectures; and the institute is well equipped in terms of platforms. IPS has put great efforts to smooth the process to host foreign talents in the best possible way.

It is also important to point out that UCAS and Chinese Government have always provided financial support with a range of scholarships. In addition, Shanghai is a flourishing and exciting city to live in, there is so much to discover!”
Fawad Muhammad - PhD student, funding supported by CAS-TWAS-fellowship

I am a foreign student studying molecular virology in Pasteur Institute Shanghai.

I came to Shanghai to learn science and choose the global research network of Pasteur, where I started my project on hepatitis C virus infection. I have been living here for more than 3 years and have thoroughly enjoying my research and social life in Shanghai.

Life in Shanghai is interesting and amazing for carrier development. Shanghai will enrich you for every thing you want in your life. The city is full of all modern sports facilities, gyms, cultural parks, historical parks, scientific parks, Chinese language institution where you have exposure with traditional Chinese culture. I am happy to be the part of this leading institute and city where I can enrich more and more in professional and social life.
Life on IPS campus

Steve Leumi Yatchoukeu - Ph.D student, funding jointly supported by CAS –T WAS President’s scholarship

Coming from Cameroon, I was first skeptical on whether I would easily adjust to lifestyle in China and at Institute Pasteur of Shanghai (IPS). Upon arrival, I was astonished to find many international students with whom I can easily interact. I also have nice Chinese colleagues who show me beauties of their culture. All this has greatly contributed to my integration at IPS and Shanghai.

At IPS, one thing I am particularly proud of, is the great “work ethic” and “discipline” applied by students and staffs on a “consistent basis”. This pushes me to do my best right from day one and I profoundly believe that these values will unlock the doors to any great achievement in life.

Being part of such a prestigious center with great performance in cutting-edge research also provides me with opportunities to network with the international scientific community.
**Future Development**

**The Jumbo Campus Projects**

**Yue-yang campus**: A world-class featured institution, for its S & T innovation to deter major infectious diseases.

**Feng-Xian campus**: A global R&D center to provide technology and biomedical solutions to public health. The hub for the Rainbow Initiative and Gold mine projects.

**Qi Lin Campus**: A Innovation base for bio-security research and development.
Shanghai is the **commercial and financial center** of China, and ranks 13th in the 2017 edition of the Global Financial Centres Index. In the last two decades Shanghai has been one of the fastest developing cities in the world.

Since 1992 Shanghai has recorded double-digit growth almost every year. In 2011, Shanghai's total GDP grew to US$297 billion with GDP per capita of US $12,784.
Shanghai is unlike anywhere else in China. Puxi, to the west of the Huangpu river, showcases **Shanghai's past as a key Asian trading post**.

The pretty French Concession, with its walled villas and cafes, retains a Parisian charm, while the spectacular riverside Bund, with its old banks and trading posts, offers views across the water to the high rises of Pudong in the east.

The latter is symbolic of Shanghai's rapid development, home to some of the world's tallest buildings and biggest corporations.
Shanghai is a **major center of higher education in China** with over 30 universities and colleges. A number of China's most prestigious universities are based in Shanghai, including Fudan University, Jiao Tong University, Tongji University, East China Normal University.

In 2013 the Shanghai Municipality and the Chinese Academy of Sciences founded the ShanghaiTech University in the Zhangjiang Hi-Tech Park. This new research university is aiming to be a first-class institution on a national and international level.
Application Procedure:

Step 1: Find an eligible supervisor affiliated with IPS and send email to him or her with CV, research proposal and any other required documents, and indicate that you wish to apply for the program.
Step 2: Review by the Sino-French evaluation committee.
Step 3: Follow the calls for scholarship application to finish required procedures.
Step 4: Announcement of the selected candidates.

Application Deadline:  March 31th, 2019 (candidates applying for scholarship)
May 31th, 2019 (candidates not applying for scholarship)

Admission Criteria:
1. Meet the admission criteria for students of both UCAS, PDeU and PDiU.
2. Hold a master degree before the beginning of the program, 1st Sept 2019.
Contacts

At Institut Pasteur of Shanghai:

Fernando Arenzana: farenzan@ips.ac.cn
Ye Lu: ylu@ips.ac.cn

At PDeU:
Marc DELPECH: marc.delpech@inserm.fr;
Mawussi Adalbert: mawussi.adalbert@parisdescartes.fr

At PDiU:
Vincent Brunie: Vincent.brunie@univ-paris-diderot.fr

Useful links

Institut Pasteur of Shanghai
http://english.shanghaipasteur.cas.cn/Home2016/

Chinese Academy of Sciences
http://english.cas.cn/

University of Chinese Academy of Sciences
http://english.ucas.ac.cn/
Thank you for your attention