# YUE TONG

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## Education

**ULB Center for Diabetes Research, Université Libre de Bruxelles** — Brussels, Belgium
*PhD of Biomedical and Pharmaceutical Science* — *Sep. 2020 – Current*

**The Second Xiangya Hospital, Central South University** — Hunan, Changsha, China
*Master of Clinical Medicine: Internal Medicine* — *Sep. 2017 – Jun. 2020*

**Xiangya School of Medicine, Central South University** — Hunan, Changsha, China
*Bachelor of Clinical Medicine* — *Sep. 2012 – Jun. 2017*

## Research Experience

**Doctoral Fellow** — Sep. 2020 – Present
*ULB Center for Diabetes Research, Université Libre de Bruxelles* — *Brussels, Belgium*
*FRIA fellowship, F.R.S - FNRS* — *Brussels, Belgium*

- **Modeling rare and common forms of diabetes using gene editing and organoids technologies**
  Developed three disease-specific models using induced pluripotent stem cell (iPSC)-derived pancreatic beta-cells, leveraging clinical and omics-driven data. Advance the understanding of how genetic variants contribute to disease pathogenesis, focusing on the roles of *ER-Golgi stress*, *autoimmunity*, and *gluco-lipotoxicity*.

  ***Keywords***: iPSC; organoids; CRISPR/Cas; monogenic and polygenic diseases; clinical trials; GWAS; eQTL

- **Modeling nutrient metabolism in developing pancreatic beta cells: cross-species insights**
  Led the human models segment in a collaborative project investigating iron metabolism in pancreatic beta cells. Conducted cross-species cellular and molecular investigations from iron-level-tethered human and mouse beta cell models to explore iron transportation impact beta cell development, function, and survival.

  ***Keywords***: cross-species model; cell/organ development; nutrient regulation; transcriptomics

- **Epigenomic regulations in obesity: insights from DNA Methylation and RNA Sequencing**
  Conducted an epigenome-wide association study (EWAS) to explore the relationship between DNA methylation profiles and obesity. Utilized targeted promoter epigenome sequencing data from pig and human models, alongside RNA sequencing data, to identify key epigenomic regulations contributing to obesity.

  ***Keywords***: obesity; EWAS

**Graduate Research Fellow** — Sep. 2017 – Jun. 2020
*The Second Xiangya Hospital, Central South University* — *Hunan, Changsha, China*

- **Distinct secretion pattern of serum proinsulin in different types of diabetes**
  Developed the project experimental design. Oversaw the recruitment of 300 participants, ensuring standardization of records and measurement protocols. Conducted comprehensive data analysis to uncover variations in proinsulin secretion among diabetes subtypes, providing insights into potential biomarkers for disease differentiation.

  ***Keywords***: cross-sectional study; biomarkers; disease subtypes

- **Immunologic and genetic pathogenesis of autoimmune diabetes**
  Organized the enrollment and follow-up for 1000 autoimmune diabetes patients and their first-degree relatives. Conceptualized and led the development of a diabetes prediction and staging project using neutrophil RNA sequencing and GWAS, advancing the understanding of genetic and immunologic risk factors in diabetes.

  ***Keywords***: cohort study; genomic/transcriptomic profiling; disease prediction autoimmunity

## Publications

1. **Tong Y**, Becker M, Schierloh U, et al. Homozygous and heeterozygous *INS* mutations cause divergent clinical and iPSC-derived beta-Cell phenotypes (manuscript in preparation)
2. Van Mulders A, Willems L, Coenen S; et al., **Tong Y**, et al. A critical role for iron import through the transferrin receptor in developing beta-cells. (manuscript in preparation)
3. Mandla R, Lorenz K, Yin X, et al., **Tong Y**, et al. Multi-omics characterization of type 2 diabetes associated genetic variation (submitted to Nature Genetics)
4. Bourgeois S; Van Mulders A; Heremans Y; et al., **Tong Y**, et al. ER stress relief drives ß-cell proliferation (submitted to Diabetologia)
5. Arunagiri A, Alam M, Haataja L, et al., **Yue Tong**, et al. Proinsulin folding and trafficking defects trigger a common pathological disturbance of endoplasmic reticulum homeostasis. Protein Science. 2024;33(4):e4949.
6. **Tong Y**, Yang L, Shao F, et al. Distinct secretion pattern of serum proinsulin in different types of diabetes. Ann Transl Med. 2020;8(7):452.
7. Xing Y, Lin Q, **Tong Y**, et al. Abnormal Neutrophil Transcriptional Signature May Predict Newly Diagnosed Latent Autoimmune Diabetes in Adults of South China. Front Endocrinol (Lausanne). 2020;11:581902.
8. Hu J, Liu Z, **Tong Y**, et al. Fibroblast Growth Factor 19 Levels Predict Subclinical Atherosclerosis in Men With Type 2 Diabetes. Front Endocrinol (Lausanne). 2020;11:282.

## Awards and Scholarships

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| **ISPAD Standard Travel Grant** \| *International Society for Pediatric and Adolescent Diabetes (ISPAD)* | Oct. 2023 |
| **SFD Travel grants for research meetings in diabetes** \| *French-Speaking Diabetes Society (SFD)* | Oct. 2023 |
| **FRIA Doctoral Fellowship** \| *F.R.S.-FNRS* | Oct. 2021 |
| **First-prize Academic Scholarship** \| *Central South University* | Sep. 2017 |
| **Third-prize School Scholarship** \| *Central South University* | Sep. 2013 |

## Conference Talk and Poster

**2024** Homozygous and heterozygous *INS* mutations cause divergent clinical and iPSC-derived beta-cell phenotypes, *The 9th Meeting of Study Group on Genetics of Diabetes (SGGD)*, Exeter, UK | Talk

**2023** Discovery of a new treatment for a novel form of rare diabetes caused by an insulin gene mutation using patients' iPSC-derived beta-cells, *The European Association for the Study of Diabetes (EASD) 2024 Annual Meeting & The International Society for Pediatric and Adolescent Diabetes (ISPAD) 2024 Annual Meeting*, Rotterdam, the Netherlands | Talks

**2023** Bedside-inspired diabetes modeling: learn from monogenic diabetes to understand the pathogenic mechanisms of T1D, *19th Immunology of Diabetes Society (IDS) Congress*, Paris, France | Invited talk

**2020** Distinct secretion pattern of serum proinsulin in different types of diabetes, *15th Xiangya International Diabetes Immunology Forum & 17th Immunology of Diabetes Society (IDS) Congress*, Beijing, China | Poster

## Skills

**Cell biology**: stem cell technologies, cell culture, cell engineering, transfection, RNA-interference, cell&tissue imaging, flow cytometry, magnetic-activated cell sorting, perifusion assay, Seahorse assay
**Molecular biology**: ELISA, Western Blotting, BCA, PCR, RT/qPCR, CRISPR/Cas genome editing
**Omics**: transcriptome study, epigenome-wide association study, cross-species study
**Clinical Practice**: Certificate of Physician Credentials and Certificate of Medical Licensure (China)
**Coding language**: Bash, R, Python, LaTeX
**Softwares**: SPSS, Graphpad Prism, CellProfiler, ImageJ, Geneious Prime, SnapGene
**Language**: English (professional proficiency); Chinese-Mandarin (native); Chinese-Cantonese (conversational proficiency); French (conversational proficiency)