

# Traumatic brain injury



**Wen-Chang Chang**

Professor, Graduate Institute of Medical Sciences, College of Medicine, TMU

- National Chair Professor of the Ministry of Education
- Academician of Academia Sinica

## Basic Research Group

- **Neurotrauma**
- **Neurodegeneration**
- **Neuroprotection**
  - Sp1
  - sigma-1 receptor
- **Research center**
  - Core Laboratory of Neuroscience, Office of R&D, CLN
  - Taipei neuroscience institute

## Clinical Research Group

- **Neuroimaging**
- **Clinical trial and medicine therapy**
- **Clinical Database**
- **Research members**  
**TMUH 、 SHH 、 WFH :**
  - Medical Imaging Dept. : 3
  - Neurology Dept. : 32
  - Nerosurgery Dept. : 33
  - Rehabilitation Dept. : 19
  - Psychiatry Dept. : 23

## Cultivation of talent

- **The Ph.D. Program for Neural Regenerative Medicine in TMU (Jointly with the National Guardian Institute)**
  - Teachers :10
  - Doctoral student :18
  - Physicians : 5
  - Pharmacist : 1
  - Students : 9
  - Foreign students :3

# Major research resources

## Clinical Research



3T Prisma MRI  
1.5T GE MRI



Dual-Source CT



Mind and Brain Lab



Transcranial Color Doppler



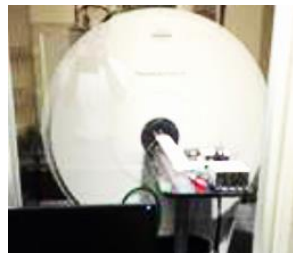
Neurological function test



## Special clinical sample/Database

**TBI** : One of the largest database in the globe (180,381)

**mTBI** : Long-term follow up database Included blood sample & patient clinical symptom



7T MRI



Animal CT



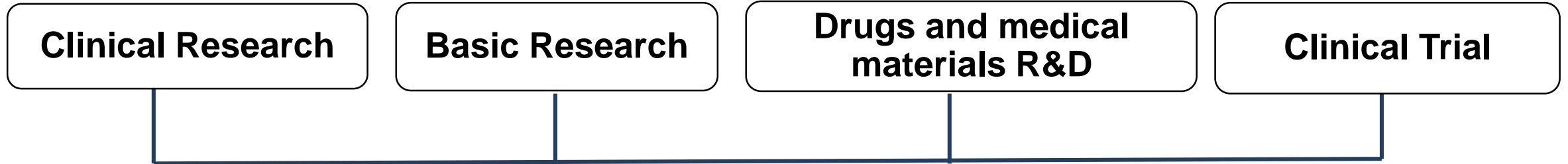
IVIS200



Illumina MiSeq System

**Institute of Neuroscience**  
**Transgenic animal center**  
**Generation Sequencing core lab**  
**Mass spectrometry core lab**  
**Medicine Synthesis core lab**

# Major research



**Aim 1  
Biomarkers**

**Aim 2  
Neuroprotective  
mechanisms**

**Aim 3  
translational  
medicine**

## Patent:

- **Wireless detection system of physiological Signals and method thereof**
- **Method for detection and examination of traumatic brain injury**
- **Device for measuring animal behavior**
- **A quantitative method for the induction of traumatic brain injury animal model**

