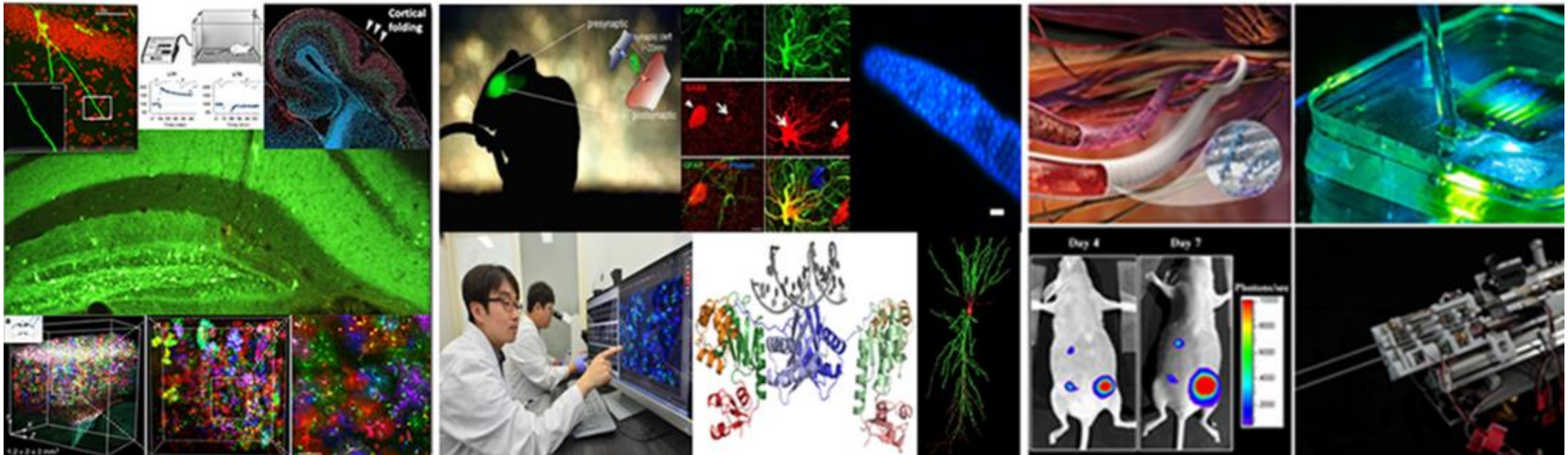# 바이오-메디컬 융합, 전공개요

- Study of life sciences and mechanism in human diseases (brain, cancer, etc)
- Development of novel therapeutics and cutting-edge biomedical technologies for patients

- Neuroscience
- Biological chemistry
- Biomedical engineering


- Faculty members: 76
- Graduates: 109

바이오-메디컬 융합, 생체신경과학 (전공소개)

Neuroscience investigates unknown mechanism underlying human cognition and brain disorders to find new treatments and novel technology.

Major research interests

- **Study of neural network development, structure and function** toward understanding of sense, cognition and movement

- **Mechanism of debilitating neurological diseases (Alzheimer's)** and research for effective therapeutics

- **Integrated, multidisciplinary research works** covering molecular genetics, neurobiology, physiology, biochemistry, drug chemistry, pathology, computer simulation
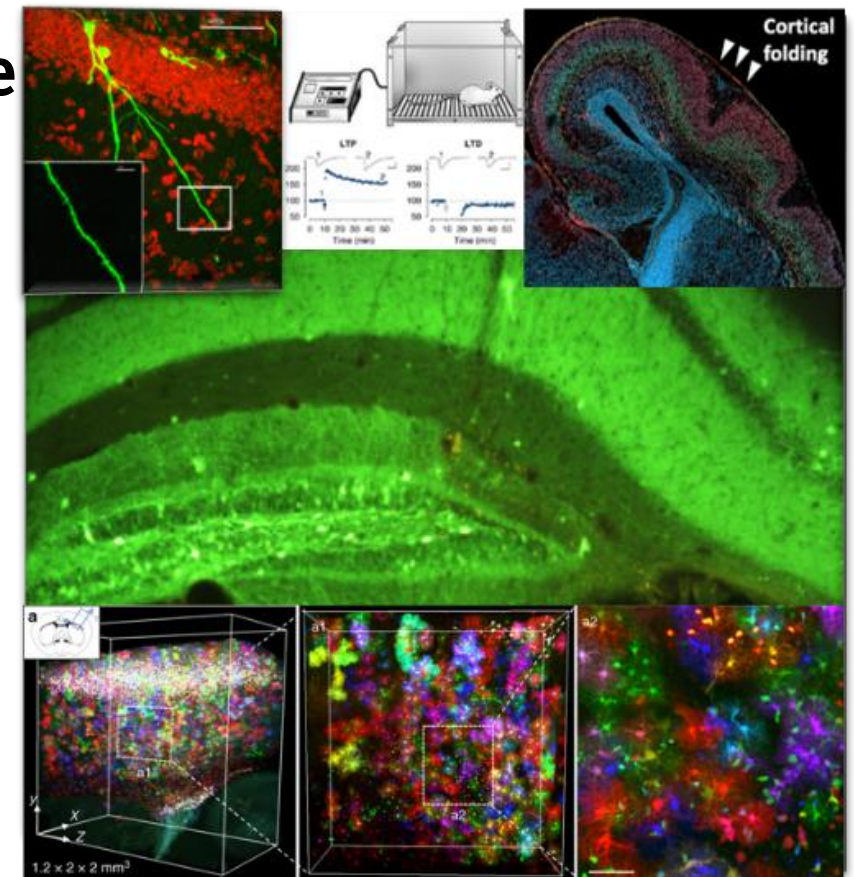
바이오-메디컬 융합, 생체신경과학 (전공소개)

- **Advanced Neuroscience** (고급 신경과학)
- **Neurophysiology** (신경생리학)
- **Learning and Memory** (학습기억)
- **Systems and Cognitive Neuroscience** (시스템 및 인지 신경과학)
- **Disorders of Brain** (뇌질환)
- **Cellular and Molecular Neuroscience** (세포분자신경과학)
- **Trends in Neuroscience** (신경과학동향)
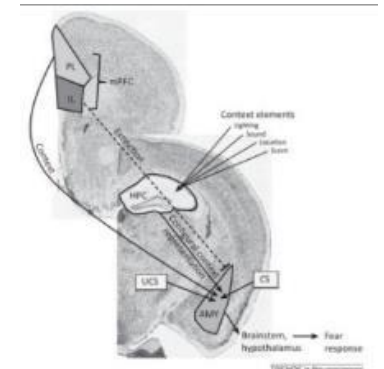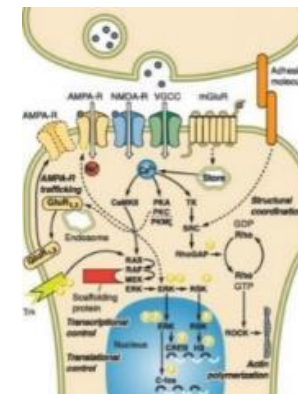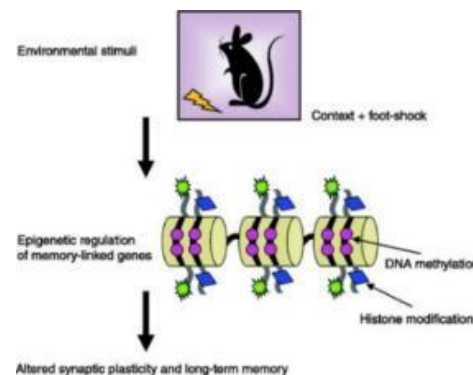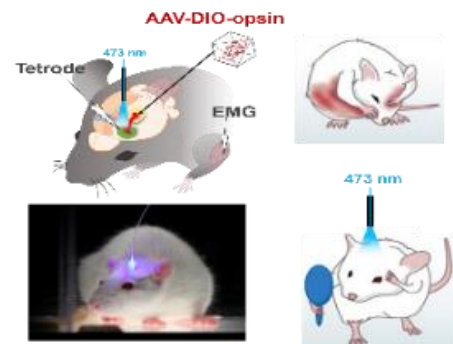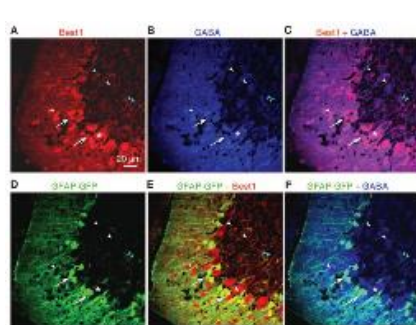
바이오-메디컬 융합, 생물화학(전공소개)

Biological chemistry focuses on discovery of promising active molecule based on the understanding of life science using **an integrated approach of biology and chemistry.**

Molecular recognition & Medicinal Chemistry

- Metabolomics and proteomics
- Small molecule based drug candidate discovery
- Pharmacology and toxicity assessment technology
- Chemoinformatics and Knowledge-based molecular synthesis
- Target discovery and evaluation

Medical imaging and Drug delivery

- Biomarker discovery based on systems biology
- Theragnosis and drug delivery system development

Brain science

- Treatment for brain diseases
- Diagnosis of brain diseases through neuroimaging
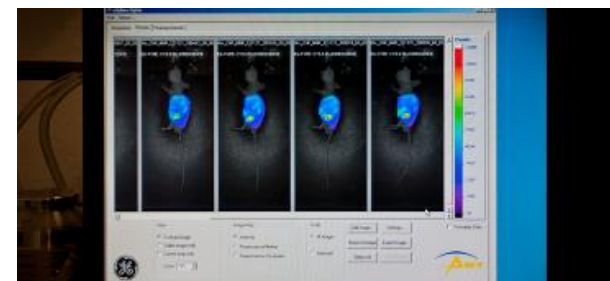
바이오-메디컬 융합, 생물화학(전공소개)

- **Advanced Biochemistry** (고급 생화학)
- **Advanced Organic Chemistry** (고급 유기화학)
- **Chemical/Cellular Biology** (화학적/세포학적 생물학)
- **Medicinal Chemistry** (의약학 심화 연구)
- **Informatics and Drug-like Properties** (정보학 및 약물성 최적 화학)
- **Pharmacology & Toxicology** (약학 및 독성학)
- **Cancer & Immunology Application** (암과 면역학 응용)
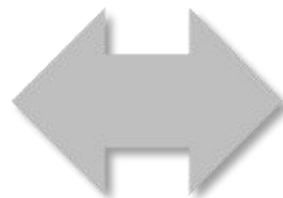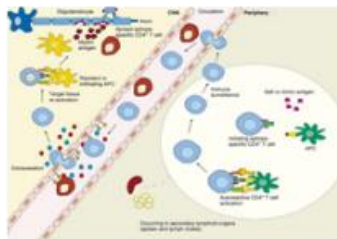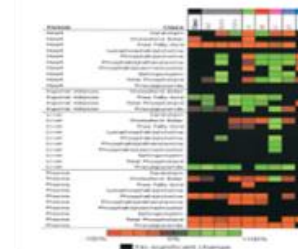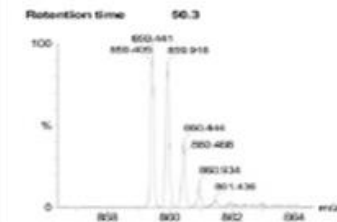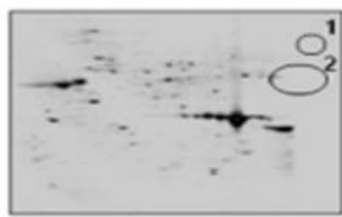
바이오-메디컬 융합, 의공학(전공소개)

Biomedical engineering is dedicated to the development of advanced tools and knowledges that can be applied for **medical treatments and early diagnosis in clinics.**
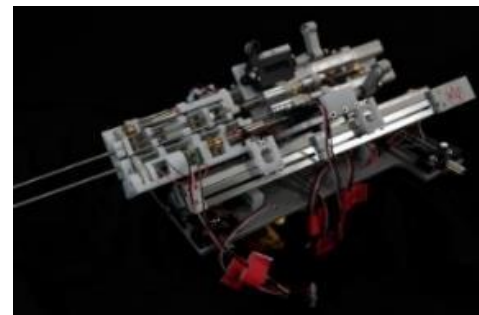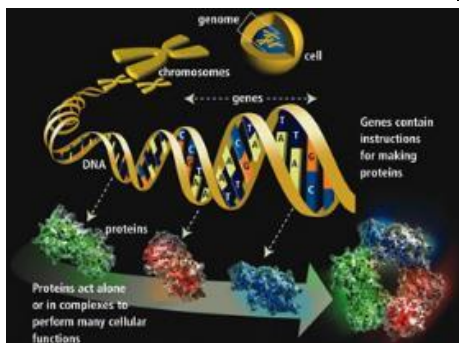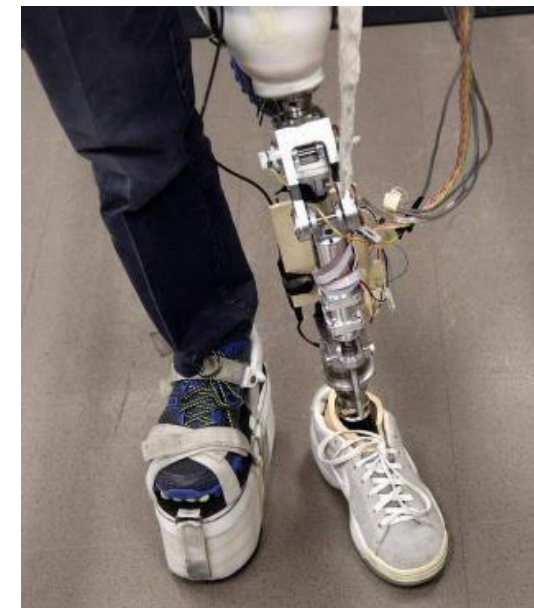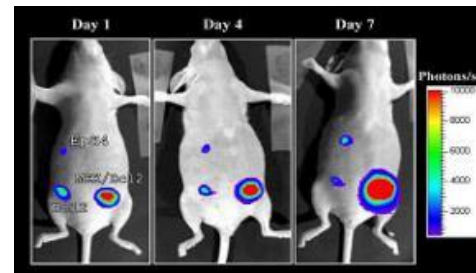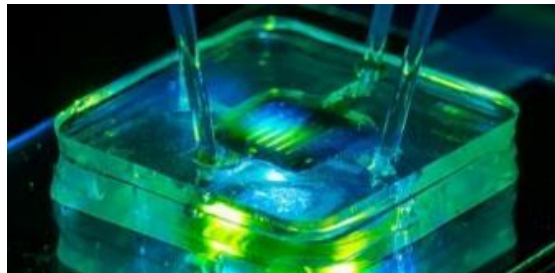
- **Biomaterials, tissue engineering, molecular imaging**
: Biodegradable metal, polymer, hydrogel/Stem cell engineering/ Nanomaterials/ Molecular imaging for cancer diagnosis/ Biosensor

- **Medical imaging & device:** Medical imaging/ Surgical micro-robot/ Rehabilitation-aiding robot

- **Biomicrosystems:** Microfluidic chip/ Neural probe/ Brain on a chip/ Biosensor

바이오-메디컬 융합, 의공학(전공소개)

- **Biomaterials Engineering** (생체재료공학)
- **Biosensor** (바이오 센서)
- **Introduction to MEMS** (MEMS 개론)
- **Nanomedicine** (나노 메디슨)
- **Biomechanics & Rehabilitation** (생체역학 및 재활공학)
- **Medical Device & Imaging System** (의료기기 및 영상 시스템)
- **Stem Cells & Tissue Engineering** (줄기세포 및 조직공학)
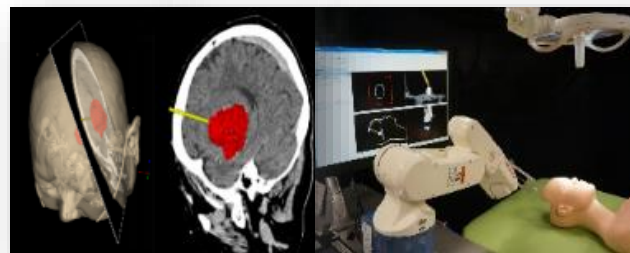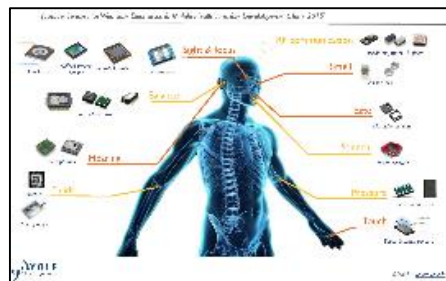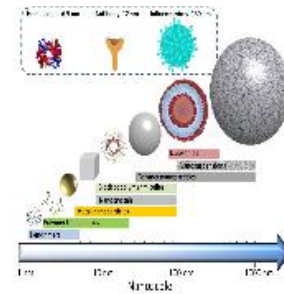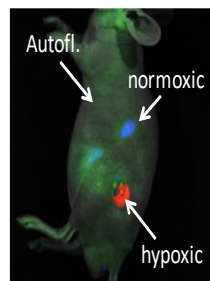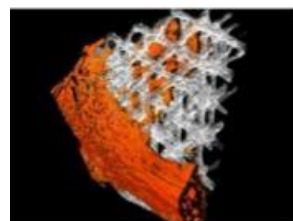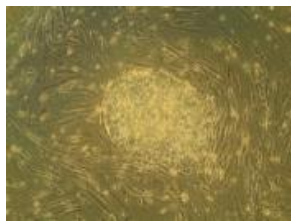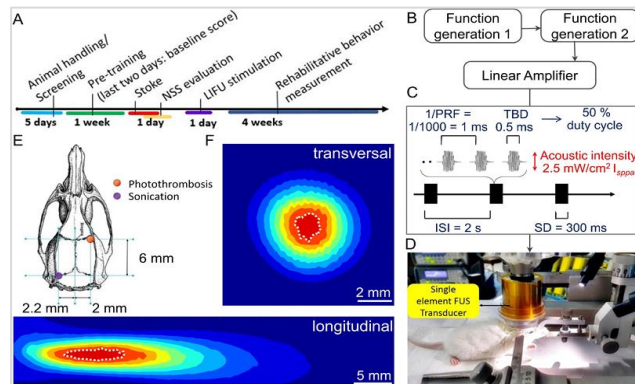
바이오-메디컬 융합 전공, 대표연구/연구자
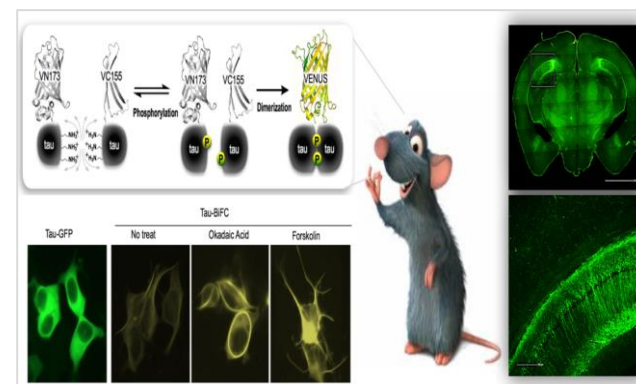
면역증강제 개발 및 적용 백신 상용화 (Prof. 정학숙)

소변검사로 전립선 암 20분만에 진단 (Prof. 이관희)

초음파로 뇌 자극, 뇌졸중 치료 (Prof. 김형민)

이미징 기반 치매 약물 평가 기술 (Prof. 김윤경)

바이오-메디컬 융합, 진로

- 정부출연연, 대학, 공공 연구소

- 박사후 연구원(국내외 연구기관, 대학)

- 국내 바이오 대기업, 중견기업 연구소

- 바이오 벤처 창업

바이오-메디컬 융합, 입학 TIP

- UST 지원자격조건 충족

- 희망 지도교수 선택 및 진학 상담

- 면접 발표 준비 철저