

제 91회

ORGAN ON A CHIP

기술교류회

2022.11.17 목 오후 4시 30분

한림대학교 중개의과학연구원 포스터홀



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1. Education

박사: KAIST, 생명화학공학과 (2007)

석사: 충남대학교, 화학공학과 (2003)

학사: 충남대학교, 화학공학과 (2000)

2. Experience

2013 ~ 현재 인하대학교 생명공학과, 교수

2012 ~ 2013 과학기술연합대학원대학교, 부교수

2010 ~ 2013 한국기초과학지원연구원, 선임연구원

2007 ~ 2010 Cornell University, Post-doc

2007 KAIST, Institute of Applied Science, Post-doc

제목 마이크로 플라즈마 액적 플랫폼 기반의 플라즈마 활성화용액 제조 및 선택적 암세포 사멸연구
(Production of plasma activated solution based on microplasma droplet platform and selective killing of cancer cells)

초록

In this work, a simple and practical microfluidic system-embedded microplasma platform was designed directly, and the degree of PAW-based selective breast cancer cell death generated through this platform was confirmed. The presented microplasma platform could quickly and reproducibly adjust the various experimental control parameters required to generate plasma in a microfluidic tube within a closed system. By further analyzing the pH, H₂O₂ concentration, oxidation-reduction potential (ORP), and conductivity of PAW generated within this platform, the mechanism occurring in the injected water droplets was analyzed in detail. Finally, by injecting various concentrations of PAW synthesized under various conditions into normal and cancer cells, an optimized concentration of PAW that selectively kills only cancer cells was confirmed. This microfluidization strategy of plasma systems is expected to form a large-scale plasma-based fluidic network and an optimized PAW generation suitable for selective cancer cell death.

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