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- 東海大學 學士，民國六十九年
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- B.S. Tunghai University, ROC, 1980
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主要研究領域

本實驗室研究領域為生醫材料、藥物釋放、組織工程，包括了以下的應用：

■ 心肌組織再生工程

以多孔性天然細胞外間質，裝載血管新生因子與幹細胞，用於心肌組織再生工程。另外，研發可注射式幹細胞片或幹細胞球團，用於心肌梗塞後的治療。

■ 產氣式藥物釋放載體

研發經由pH/溫度刺激後，能快速產生治療性氣體及釋放藥物的載體，用於癌症、發炎反應等的治療。

■ 原位成形光熱治療水膠

研發可注射式pH敏感水膠，經由近紅外光導引後局部產熱，用於癌症、發炎反應等的治療。

■ 奈米生醫

研發攜帶抗癌藥物奈米載體，標的及治療癌組織。研發能以口服方式攜帶胰島素、蛋白質、多醣類等巨分子藥物的奈米微粒載體，治療糖尿病等。

Main Research Interests

Our group has been extensively involved in the fields of biomaterials applied for drug/gene delivery and tissue engineering.

■ Myocardial Tissue Engineering

Bioengineered scaffolds populated with stem cells and growth factors are developed for myocardial tissue regeneration. Also, living cell sheets and 3D cell bodies of stem cells are developed for intramyocardial injection to rescue the infarcted myocardium.

■ Bubble-Generating Carrier Systems

Agents that can generate gas bubbles are encapsulated in carrier systems (liposomes and microspheres) for actively triggering drug release locally to establish effective tumor-selective chemotherapy and other therapeutic applications.

■ In-situ Forming Hydrogel

In-situ forming hydrogels are developed for photothermal inducible hyperthermia in cancer and inflammation treatments.

■ Nanomedicine

Novel self-assembled nanoparticles conjugated with specific ligands are developed for targeting cancer cells. Also, a platform technology, using multifunctional nanoparticles that can assist in absorption enhancement and protease inhibition, for oral delivery of therapeutic proteins (such as insulin) and polysaccharides are developed.

代表作 (Selected Publications)

- Wan, W.L., Tian, B., Lin, Y.J., Korupalli, C., Lu, M.Y., Cui, Q., Wan, D.H., Chang, Y.*, **Sung, H.W.***, "Photosynthesis-Inspired H₂ Generation Using a Chlorophyll-Loaded Liposomal Nanoplatform to Detect and Scavenge Excess ROS," Nature Communications, 2020.
- Miao, Y.B., Pan, W.Y., Chen, K.H., Wei, H.J., Mi, F.L., Lu, M.Y., Chang, Y.*, **Sung, H.W.***, "Engineering a Nanoscale Al-MOF-Armored Antigen Carried by a "Trojan Horse"-Like Platform for Oral Vaccination to Induce Potent and Long-Lasting Immunity," Advanced Functional Materials, vol.29, 2019.
- Lin, Y.-J., Chen, C.-C., Chi, N.-W., Nguyen, T., Lu, H.-Y., Nguyen, D., Lai, P.-L.*, **Sung, H.-W.***, "In situ self-assembling micellar depots that can actively trap and passively release NO with long-lasting activity to reverse osteoporosis," Advanced Materials. vol. 30, 1705605, 2018.
- Wan, W.-L., Lin, Y.-J., Shih, P.-C., Bow, Y.-R., Cui, Q., Chang, Y., Chia, W.-T.*, **Sung, H.-W.***, "An In Situ Depot for Continuous Evolution of Gaseous H₂ Mediated by a Magnesium Passivation/Activation Cycle for Treating Osteoarthritis," Angew Chem Int Ed Engl. vol. 57, pp. 9875-9879, 2018.
- Wan, W.-L., Lin, Y.-J., Chen, H.-L., Huang, C.-C., Shih, P.-C., Bow, Y.-R., Chia, W.-T.*, **Sung, H.-W.***, "In Situ Nanoreactor for Photosynthesizing H₂ Gas to Mitigate Oxidative Stress in Tissue Inflammation," Journal of the American Chemical Society, vol. 139, pp. 12923-12926, 2017.

