

# Smart Biomaterials for Personalized Medicine

## Bioprinted Wound Dressings and Skin Substitutes

- Biomimetic artificial skin and wound dressings for scarless wound healing

## Stimuli-Responsive Transdermal Drug Delivery Systems

- Reusable stimuli-responsive devices with extended operational time
- Smart theragnostic tools with multi-modal sensors and AI-powered decision-makers

## AI-Powered Wound Diagnostic Tools

- AI-powered multi-modal sensors for tissue segmentation and volumetric mapping of chronic wounds
- Medical digital twins

## Space Health and Bioastronautics

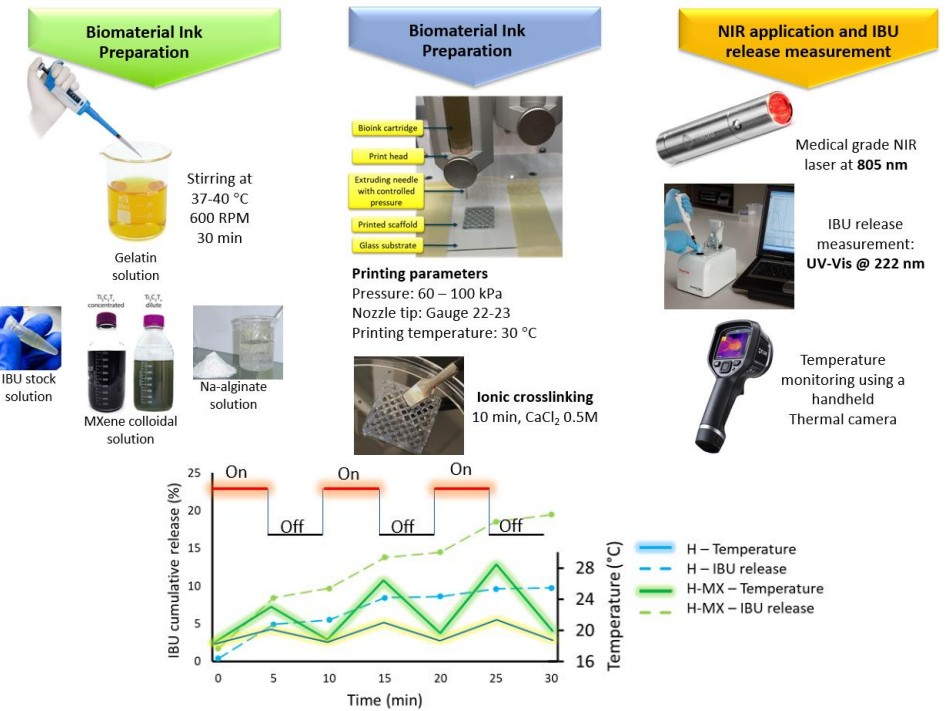
- Effect of microgravity and harsh condition on tissue regeneration, immune response, and angiogenesis

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- Center for Biomedical Research
- NSF CFIRE
- NSF STTR
- NIH MBARK



Smart drug delivery system: NIR-responsive Hydrogel-MXene systems for on-demand ibuprofen release

### Keywords

- #Smart\_biomaterials #Bioprinting #Wound\_healing #Drug\_delivery\_systems #AI\_diagnostics

### Recognitions

- People Choice Award – Equalize pitch event in MedTech 2025
- BioKansas Innovation Festival Finalist 2023
- Tissue Engineering and Regenerative Medicine (TERMIS) Young Investigator Award 2020