# MEDICINAL ADHESIVE COMPOSITIONS

Tech ID: 34010 / UC Case 2025-122-0

## PATENT STATUS

Patent Pending

## BRIEF DESCRIPTION

Current α-linolenic acid (ALA)-based medical adhesives are limited by ALA's poor water solubility and poly(ALA)'s hydrophobicity, often requiring elevated temperatures, organic solvents, or complex preparations for delivery to biological tissue. This innovation reports on ALA-based powder and low-viscosity liquid superglues that polymerize and bond rapidly upon contact with wet tissue. Developed by UC Berkeley researchers, the versatile adhesives use a monomeric mixture of ALA, sodium lipoate, and an activated ester of lipoic acid, which grants them high flexibility as confirmed by stress-strain measurements on wet adhesives. The adhesive is cell and tissue-compatible, biodegradable, and can sustain drug delivery as a small molecule regenerative drug was successfully incorporated and released without altering its physical or adhesive properties. Furthermore, the inherent ionic nature of the adhesive gives it high electric conductivity and sensitivity to deformation, enabling its use as a tissue-adherent strain sensor.

## SUGGESTED USES

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Suturing/wound closure in wet biological tissues.

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Sustained, localized drug delivery via incorporation of small molecule regenerative drugs or other therapeutics.

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Development of tissue-adherent, flexible, and electrically conductive strain sensors.

## ADVANTAGES

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Rapid polymerization and bonding upon contact with wet tissue, overcoming issues with traditional ALA-based adhesives.

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Formulated as a powder or low-viscosity liquid superglue, simplifying preparation and delivery.

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High flexibility in wet conditions.

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Cell and tissue compatible and biodegradable.

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## CONTACT

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## INVENTORS

» Messersmith, Phillip B.

## OTHER INFORMATION

**CATEGORIZED AS**

» **Materials & Chemicals**
» Biological
» Polymers
» **Medical**
» Delivery Systems
» Therapeutics
» **Sensors & Instrumentation**
» Biosensors
» Medical

**RELATED CASES**

2025-122-0

Ability to incorporate and release regenerative drugs without compromising adhesive properties.

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High electric conductivity and sensitivity to deformation due to inherent ionic nature, allowing use as a strain sensor.

## RELATED MATERIALS

Berkeley
UNIVERSITY OF CALIFORNIA

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