

# **GallAnnihilator 2040 - Technology Concept for Gallstone Annihilation**

## **1. Purpose**

- GallAnnihilator 2040 is a biotech platform for non-surgical removal of any type of gallstones including calcified and pigment stones.
- It operates internally without harming tissues or creating fragments.

## **2. Operating Principle**

- A smart capsule is introduced into the body and activated via magnetic-laser interface.
- Targeting is performed via ultrasound or MRI guidance.
- A focused plasma-enzymatic impulse breaks the stone structure from within.
- Byproducts are safely metabolized and excreted in 48 hours.

## **3. Architecture**

- - Nano capsule with pH, density, and calcium sensors.
- - External controller with medical interface synced to imaging.
- - Biocompatible reagents activated only near the stone.
- - Safety protocol: self-deactivation if target deviation >2mm.

## **4. Advantages**

- - Painless, non-invasive, no anesthesia.
- - No organ removal needed.
- - Works regardless of stone size, location, or density.
- - Supports full functional recovery of the gallbladder.

## **5. Future Potential**

- - AI integration to classify stone chemistry.
- - Expansion to kidneys and pancreatic ducts.
- - Commercial debut forecasted for 2040.

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