

Oxford Medical Products has developed a safe, flexible, strong and durable hydrogel, surviving the harsh conditions of the stomach for up to 7 days.



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- Over 60 hydrogels taken in Phase 1.
- Participants reported appetite suppression and tolerability
- Some participants experienced nausea after dosing.
- Phase 3 starting approx. end of 2024.

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Contact Elanor Hinton, Clinical Studies Manager, to register an interest as a site for our upcoming Phase 3 trial

Developing a new weight-loss product: from bench to bedside

(1) **Background**

- Increasing levels of obesity worldwide highlight the need for novel interventions to promote weight management.
- An ingestible, gastroretentive, degradable, double-network superporous hydrogel has been developed, to elicit feelings of satiety and reduce food intake.

(2) Mode of action

The ingested pill swells in the stomach, designed to give a natural feeling of fullness



Swollen hydrogels in the stomach are designed to suppress appetite c.24/7



Fig. 7: T1-weighted MRI (VIBE) approx. 2hrs after dosing 3 pills (indicated with arrows) with 250ml water (a) depicts 3D imaging plane; (b) axial view, (c) coronal view, (d) sagittal view through stomach (shown with yellow line).



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Fig. 2: Swollen OMP hydrogel (i) with a volume ≈ 40cc. SEM image of freeze-dried OMP hydrogel (ii)



Each hydrogel breaks down and passes naturally, with re-dosing maintaining a constant effect



Fig. 8: shMOLLI MRI approx. 2 hrs after dosing 3 pills with 250ml water, axial view of hydrogel (highlighted with white arrow) in stomach (dotted line)

Fig. 9: shMOLLI MRI 5 days after dosing (as above), axial view of hydrogel (highlighted with white arrow) in pylorus/upper duodenum.

MRI on 3T Siemens Prisma Hydrogel visualised using T1weighted VIBE and shMOLLI images up to 7 days after dosing.





Fast-swelling swell larger than pylori within 10-30 min resulting in long-term gastroretention



Fig. 4: Stress-Strain curve of OMP hydrogel and Tofu under compression force.



peristaltic forces.

Fig. 5: Illustration of one compression cycle. (a) before compression; (b) during compression; (c) immediately after compression; (d) recover after compression and rehydration.



Excellent biocompatibility:

All biological evaluation tests were performed in compliance with Good Laboratory Practice and ISO 10993 series.

(3) Pre-clinical testing



Anti-fatigue survived 8000+ cycles of 15-20N compression forces, equivalent to 8 days of 150-200% stomach



Soft and Tough High compressive strength and low elastic modulus: able to withstand housekeeper waves

while conferring a soft feeling

to the stomach lining

