



Akina, Inc.

Restiex™ Reshapable Tissue Expander

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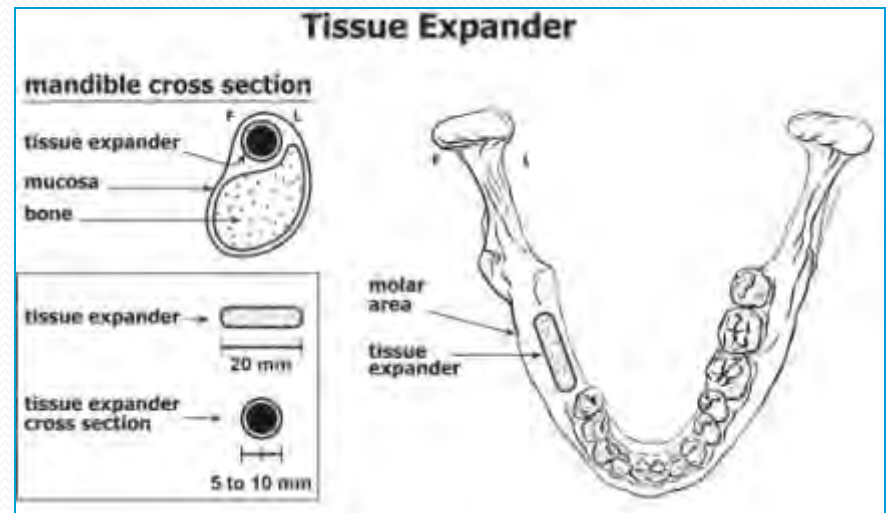
Restiex project supported by NIH grant
“Delayed Hydrogel Tissue Expander”
Grant #: 2R44RR024253-02A1
Presentation does not necessarily represent
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Current: Tissue Expansion

Tissue expansion is the process by which mucosa is slowly stretched over the course of 2-6 weeks causing a flap of new tissue to grow which can subsequently be utilized to cover over a permanent implant.

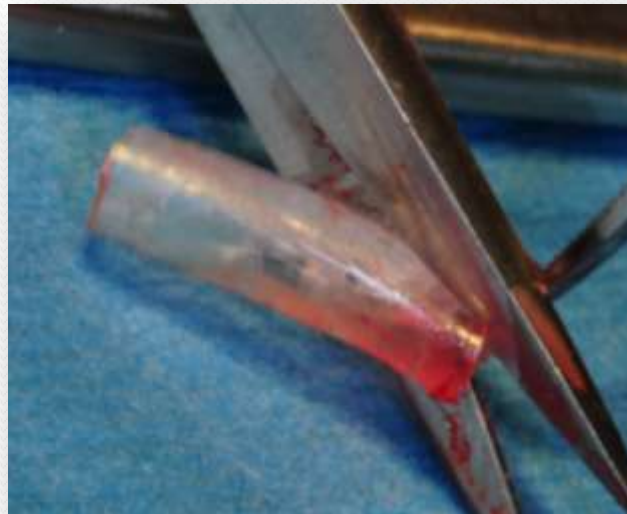
Clinical Problem

Current expanders utilize a silicone shell and are either filled externally or self-filling in either case they can not be altered at time of implantation.



Akina Solution

- Biocompatible, elastic, biodegradable, chemically-crosslinked hydrogel
- Delayed swelling characteristics built into the hydrogel itself
- The hydrogel to be cut by the surgeon at time of implantation to best fit the desired void volume.



In-Vitro Properties

Property	Method	Value (+/-STDEV)
Swell Pressure	Swelling in 0.154M HCl under stationary force probe	794 ± 362 mmHg (N=12)
Elasticity	Compression-stress/strain slope 0-2%	9.5 ± 6.1 kPa (N=12)
Relaxation	Compression- held 60 seconds at 10% strain initial/T=60	51.6 ± 5.0% (N=12)

Swelling (mass change) 37C in PBS

Days	1	5	12	33	47	61
Swell ratio (wd/wt=x)	1.7	2.1	2.4	2.8	2.7	2.9

In-Vivo Study success

- In addition to extensive in-vitro testing of over 180 prototypes, 11 prototypes have been tested in vivo in a rat-scalp expansion model. In this model the skin was successfully expanded as shown below.



- The reviewing clinical pathologist remarked that the biocompatibility was so good that the tissue reaction appeared similar to that of the reaction to surgical grade steel.
- The expanders are currently in dog-jaw model in-vivo testing stages.


Summary

- Akina Offers a novel hydrogel based technology which can overcome clinical problems associated with tissue expansion in dental application.
- Akina is seeking a strategic partnership for the further development of this material into a clinical product
- Akina Inc. Restiex technology is at the edge of exponential growth. Akina Inc. is looking for a partner for scale-up GMP manufacturing and clinical trials.




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