

# Strategic BioSciences

## MUCOAD™ Mucoadhesive Technology

### TECHNOLOGY DESCRIPTION

Researchers at Strategic BioSciences have developed MUCOAD™, a mucoadhesive pharmaceutical composition that can be loaded with nearly any pharmaceutical preparation. These compounds can be delivered to mucosal tissues. MUCOAD is a nontoxic, nonirritating, liquid polymer mucoadhesive carrier which prolongs the contact time between drug and mucosa, thus increasing bioavailability and efficacy of the delivered drug. The adherence of pharmaceuticals to the mucosa could require lower doses of the drug to be administered and thus the desired therapeutic effect may be achieved with a lower incidence of adverse reactions.

### APPLICATIONS

This technology can be applied to powders, gels, microspheres, liposomes, and liquid formulations. In addition to being used in intranasal applications, other sites of application may include buccal/sublingual, ophthalmic, vaginal, and rectal. The composition can be used for drug delivery in various transmucosal pharmaceutical preparations. Potential applications include:

- Nasal decongestants
- Second generation antihistamines
- Second generation H1 antagonists
- Local corticosteroids
- CNS drugs
- Cough and cold preparations
- Asthma treatment
- Periodontal applications
- Treatment of slow-healing wounds

### TECHNOLOGY OFFER

Strategic BioSciences is interested in collaborations that involve:

- Evaluation Agreements: This is an option to license the technology following the successful completion of a customized clinical evaluation of the active drug of the licensee's choice and MUCOAD
- Licensing Agreements: Exclusive product specific, or therapeutic area specific agreements with full technical assistance in product development, clinical trials, etc.

A number of such agreements are presently in different levels of negotiations.

### PATENTS / PUBLICATIONS

[WO 2007/049102](#) (published 3 May 2007)

[United States Patent Application 2007/104791](#) (published 10 May 2007)

[GB 2,423,711](#) (published 6 September 2006)

### DEVELOPMENT STAGE

*In vitro* and *in vivo* studies have shown that the composition provides improved bioavailability and optimal rheological properties, fast diffusion, and excellent mucoadhesive qualities. The technology has been developed for some existing drugs, however, for each formula the specific conditions need to be adjusted for optimal results. The company has developed a methodology and unique devices to assess and adjust the required mucoadhesive properties.

When the technology is used in a decongestant preparation of xylometazoline 0.1 percent, the resulting product displayed enhanced clinical efficacy compared to the standard commercial solution without rebound swelling and side effects in subjects with allergic rhinitis. The technology has also been nasally developed with the selective 5-HT<sub>4</sub> agonist clopramide as an anti-emetic.

Researchers have prepared a stable solution of the antihistamine loratadine (practically insoluble

until now), which they are in the process of coupling to a mucoadhesive carrier. Additional tests for irritability and toxic effects on the mucosa still need to be conducted.

Vaginal applications are in an early stage of development. One test with nystatin, and another with metronidazole were able to cure thrush. Further development is required for formulation and optimization of the solution.

#### COMPETITIVE ADVANTAGE

MUCOAD compositions have the following advantages:

- Low viscosity and significant adhesiveness
- Improved bioavailability
- Increased therapeutic effect at lower doses
- Increased therapeutic effect with lower adverse effects
- Easy application regardless of cognitive stage
- Ideal for compounds presently not administered by the oral route such as insulin
- Ideal for compounds causing gastrointestinal irritation when taken by mouth
- Ideal for anti-emetic compounds
- Ideal for CNS compounds
- Lower cost
- Licensees are afforded new patents to drugs with expired or expiring patents
- Easier to secure drug approval based on existing data of old drugs

Based on experience with a decongestant coupled to the mucoadhesive in subjects with allergic rhinitis, the company believes that the combination may possess some new healing properties, which may exceed the benefits of the drug alone.

#### COMPANY INFORMATION

Strategic BioSciences, a Washington, D.C.-based pharmaceutical company, is a joint venture of Strategic Pharmaceutical Advisors (SRxA) Holdings and Fortune Apex Development of Hong Kong. Strategic BioSciences holds the exclusive global rights to MUCOAD.

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