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## CYT003-QbG10 monotherapy for the treatment of allergic rhinoconjunctivitis is safe and efficacious in phase IIb study

- *Study meets primary and both secondary endpoints*

Schlieren (Zurich), Switzerland, July 31, 2009 – Cytos Biotechnology Ltd (SIX:CYTN) today announced that a phase IIb study with CYT003-QbG10 monotherapy for the treatment of allergic rhinoconjunctivitis met its primary and both secondary endpoints. The study was a randomized, double-blind, placebo-controlled, multicentre, phase IIb study and included 299 patients suffering from house dust-mite allergy. It investigated the safety, tolerability and efficacy of six weekly injections of CYT003-QbG10 given at two dose levels (0.5 mg and 1 mg) and placebo.

Primary efficacy was assessed by recording rhinoconjunctivitis symptom and medication scores in patient diaries over a 14 day period. Secondary efficacy parameters were quality of life with rhinoconjunctivitis assessed by a validated questionnaire, and change in allergen tolerance determined by a standard conjunctival provocation test.

The combined symptom and medication score based on diary card records is the standard clinical parameter for the assessment of allergic disease severity and recommended by the World Allergy Organization (WAO)<sup>1</sup>. In the 1 mg group patients had post-treatment a 39% lower median combined symptom and medication score than patients on placebo ( $p=0.035$ ). While allergy symptoms were significantly lower in the 1 mg group than in the placebo group ( $p=0.027$ ), medication use was generally low and did not differ significantly between the two groups.

Quality of life with rhinoconjunctivitis was determined by a validated questionnaire (Juniper miniRQLQ), which investigates five items (nose symptoms, eye symptoms, other symptoms, practical problems, activity limitations). Post treatment, patients in the 1 mg group reported a median 42% better quality of life score than patients on placebo ( $p=0.020$ ).

The conjunctival provocation test establishes the dose of allergen which can be tolerated by patients with minimal allergic symptoms. In this test, patients are exposed to increasing doses of allergen extract delivered by an eye drop, and the dose is recorded which induces a defined minimal allergic response. Post treatment, the median allergen tolerance was 10-fold increased in the 1 mg group but remained unchanged in the placebo group ( $p=0.007$ ).

Symptom and medication scores, quality of life, and allergen tolerance were all better in the 1 mg group than in the 0.5 mg group post treatment. In the low dose group, the difference to placebo reached statistical significance in the quality of life score and was numerically better in the symptom and medication score.

Treatment at both dose levels was safe and well tolerated. Importantly, no dose limiting side effects were observed, which may enable the use of higher doses in future studies.

Detailed study results will be presented at an upcoming scientific conference.

Dr. Wolfgang Renner, CEO of Cytos Biotechnology Ltd commented the study results: "These new results confirm the safety and efficacy of QbG10 monotherapy for the treatment of allergic rhinoconjunctivitis. With the completion of the ongoing phase II study in allergic asthma in Q1 2010, the early development phase will be finalized and the product should be highly attractive for

partnering with a leading pharmaceutical company. QbG10 has the prospect of becoming the first allergen-independent disease modifying therapy for allergic diseases with the potential to address significant unmet medical need in an indication which affects large portions of our society”.

### **About CYT003-QbG10**

CYT003-QbG10 is an immunotherapeutic product in development for the treatment of allergy and asthma. It is based on Cytos Biotechnology’s modified Immunodrug™ platform, which applies immunostimulatory DNA sequences to induce targeted T cell responses. The immunotherapeutic encompasses the virus-like particle Qb, which is filled with the immunostimulatory DNA sequence G10 – a synthetically produced stretch of DNA originally derived from bacteria. This DNA sequence is recognized by so called toll-like receptors, an evolutionary ancient class of receptors that detect microbial patterns and serve as the first line of defense of the immune system. CYT003-QbG10 aims to alter the immunological milieu and the allergic immune cell responses to ameliorate disease symptoms. In contrast to current marketed immunotherapy approaches, which are all based on allergen components, CYT003-QbG10 is free of allergen and is thought to act through an allergen-independent mechanism. The use of a single allergen-independent agent would not only simplify treatment for multiple allergies but also improve tolerability by avoiding allergen-induced side effects.

### **About allergic diseases**

Allergy as a whole is a multi-faceted disease and manifests itself clinically in various allergic disorders including allergic rhinoconjunctivitis, asthma, eczema and food hypersensitivity. It is an exaggerated reaction by the patient’s immune system to a normally harmless substance such as various environmental proteins present in pollen, dust mite feces, or food. Allergy is a very common chronic disease, and its prevalence has increased dramatically within the last few decades. Today, more than 20% of the world population suffers from allergic diseases<sup>2</sup>, and Europe alone has 80 million allergy sufferers<sup>3</sup>. House dust mites and cats represent the two most important allergen sources for perennial allergies. There are three general approaches being pursued today to relieve the symptoms of allergic diseases: avoidance of the allergen whenever possible; prescription of medication that targets disease symptoms; and conventional immunotherapy, also known as desensitization. Symptomatic medication only offers short-term amelioration of the disease. For patients this may mean chronic use of corticosteroids and antihistamines – often with multiple daily doses. Conventional immunotherapy, on the other hand, is very time-consuming (3-5 years) and, with up to 80 allergen injections, it is also inconvenient for the patient, so that only few allergy sufferers take advantage of this therapy.

### **Conference call today at 3.00 pm (CET)**

Cytos Biotechnology will host a conference call and Q&A session today, Friday, July 31, 2009, at 3.00 pm (CET) to discuss the study findings.

To access the conference call, please dial the following numbers:

Europe	+41 (0) 91 610 56 00
U.S.	+1 (1) 866 291 41 66
U.K.	+44 (0) 207 107 06 11

The conference call will also be accessible by webcast on the internet. You may follow the call live or have it replayed later on demand. To access the webcast and the presentation, please follow the link provided on the company’s home page [www.cytos.com](http://www.cytos.com). The conference will be held in English and the presentation slides will be available for download 30 minutes prior to the conference.

## **For further information please contact:**

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## **Glossary**

**Allergen:** a normally harmless substance that elicits a misdirected immune response.

**Allergic asthma:** chronic inflammation and obstruction of the airways of the lungs caused by exposure to allergens.

**Conjunctival:** relating to the conjunctiva, the mucous membrane that lines the inner surface of the eyelid and the exposed surface of the eyeball.

**Double-blind:** a set-up often used in clinical trials where neither the doctor nor the patients know if placebo or the active drug is applied.

**Immunostimulatory:** able to stimulate the immune system.

**Immunotherapy / immunotherapeutic:** a therapy / a medication aimed at activation of the immune system to modulate a certain disease process.

**Monotherapy:** treatment with one drug as opposed to combination therapy. Here the term refers to treatment with QbG10 alone (i.e. CYT003-QbG10) in contrast to an earlier regimen where QbG10 was combined to allergen extract (i.e. CYT005-AllQbG10).

**Placebo:** dummy medical treatment.

**QbG10:** Cytos Biotechnology's Immunodrug™ Qb filled with the immunostimulatory DNA sequence G10.

**Rescue medication:** during the study, patients are provided access to specified medications to alleviate allergy symptoms if needed.

**Rhinoconjunctivitis:** combination of rhinitis (inflammation of the nasal mucosa) and conjunctivitis (inflammation of the mucous membrane of the eye).

**Symptom and medication scores:** Symptoms and concomitant medication use during the study are recorded on individual diary cards during a defined period of time.

## **References**

1. Recommendations for standardization of clinical trials with allergen-specific immunotherapy for respiratory allergy. A statement of a World Allergy Organization (WAO) taskforce; *Allergy*, 2007; 62:317, and Assessment of combined symptom and medication scores for rhinoconjunctivitis immunotherapy clinical trials; *Allergy*, 2007; 62:1023.
2. World Health Organization; *Prevention of Allergy and Allergic Asthma*, January 2002.
3. GA<sub>2</sub>LEN - Global Allergy and Asthma European Network, www.ga2len.net, 2008.

## **About Cytos Biotechnology**

*Cytos Biotechnology Ltd is a public Swiss biotechnology company that specializes in the discovery, development and commercialization of a new class of biopharmaceutical products – the Immunodrugs™. Immunodrugs™ are intended for use in the treatment and prevention of common chronic diseases, which afflict millions of people worldwide. Immunodrugs™ are designed to instruct the patient's immune system to produce desired therapeutic antibody or T cell responses that modulate chronic disease processes. Taking advantage of the high flexibility of its Immunodrug™ platform, Cytos Biotechnology has built a diversified pipeline of Immunodrug™ candidates in various disease areas, of which six are currently in clinical development. The Immunodrug™ candidates are developed both in-house and together with Novartis, Pfizer and Pfizer Animal Health. Founded in 1995 as a spinoff from the Swiss Federal Institute of Technology (ETH) in Zurich, the Company is located in Schlieren (Zurich). Currently, the Company has 90 full-time employees. Cytos Biotechnology Ltd is listed on the SIX Swiss Exchange (SIX:CYTN).*

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