

Press release

Synairgen plc (‘Synairgen’ or the ‘Company’)

IFN-beta Patent Granted in the US

Southampton, UK – 4 September 2009: Synairgen plc (LSE: SNG), the respiratory drug discovery and development company with a particular focus on viral defence in asthma and chronic obstructive pulmonary disease (‘COPD’), is pleased to announce that the patent for inhaled interferon beta (‘IFN-beta’) to treat rhinovirus infections in asthma and COPD has been granted in the US.

The patent is part of a patent portfolio owned by the University of Southampton, which is exclusively licensed to Synairgen.

Richard Marsden, CEO of Synairgen, commented, *“This intellectual property is a key part of our main programme and is core to realising our commercial objectives.”*

-Ends-

For further information, please contact:

Synairgen plc

Richard Marsden, Chief Executive Officer
John Ward, Finance Director

Tel: + 44 (0) 23 8051 2800

Matrix Corporate Capital

Alastair Stratton
Anu Tayal

Tel: + 44 (0) 20 3206 7000

Threadneedle Communications

Graham Herring
Josh Royston

Tel: + 44 (0) 20 7653 9850

Notes for Editors

About Synairgen

Synairgen is a drug discovery and development company founded by Professors Stephen Holgate, Donna Davies and Ratko Djukanovic, focused on identifying and out-licensing new pharmaceutical products which address the underlying causes of asthma and COPD. Synairgen is listed on AIM (LSE: SNG).

Synairgen's researchers use advanced cell models incorporating human tissue and cells drawn from its biobank of clinical samples, which are obtained from well-characterised healthy control, asthma or COPD volunteers.

For more information about Synairgen please see www.synairgen.com.

Synairgen's interferon beta programme

Synairgen is developing inhaled IFN-beta for viral-induced asthma and COPD exacerbations.

Using *in vitro* human models, it was discovered that epithelial cells (cells which line the airways) from both subjects with asthma and COPD have significantly weaker anti-viral responses to the common cold virus than healthy control subjects. The addition of low levels of IFN-beta into the models restored anti-viral responses (simulating aerosolised IFN-beta therapy). This suggests that local delivery of IFN-beta to the lungs could limit the spread of virus to lungs in subjects with respiratory disease and the consequent worsening of their symptoms.

Synairgen has successfully completed a Phase I study in non-asthmatic subjects (SG003) and has completed recruitment for a Phase I study in controlled asthmatics taking inhaled corticosteroids (SG004).

Synairgen has entered into a supply and licence agreement for a patent-protected formulation of IFN-beta from the Rentschler Group in Germany.

Biomarkers

A biomarker is a substance used as an indicator of a biologic state. In this case Neopterin is a drug activity biomarker that is objectively measured and evaluated as an indicator of pharmacologic responses to a therapeutic intervention (i.e. inhaled IFN-beta).

Asthma statistics

- There are approximately 23 million asthmatics in the USA²
- The economic cost to the USA of asthma is \$19.7 billion per year³
- Asthma accounts for 1.7 million emergency department visits per year in the USA²
- The cost of emergency department visits and in-patient care in relation to asthma in the USA is \$4.7 billion²
- The average duration of a hospitalisation for an asthma exacerbation in the USA is 2.7 days at a cost of \$9,078⁴
- 50% of the total cost of the asthma is apportioned to 10% of the asthmatic population with the severest disease⁵

COPD statistics

- COPD includes chronic bronchitis and emphysema
- COPD is forecast to be the third leading cause of death worldwide (after heart attack and stroke) by 2030⁶
- 12 million adults in the USA have reported a physician diagnosis of COPD. However, as many as 24 million adults have some evidence of impaired lung function, implying an under-diagnosis of this disease⁷
- The economic cost to the USA of COPD is \$42.6 billion per year³

- Hospital care cost \$11.3 billion² and in 2005 there were 721,000 hospitalizations for COPD in the USA⁸

Rhinovirus (common cold virus) and exacerbations (worsening of symptoms) of asthma and COPD

- Adults get an average of two to four colds per year, mostly between September and May. Young children suffer from an average of six to eight colds per year⁹
- Rhinovirus infections are the major cause of asthma exacerbations, accounting for 50% to 80% of all such attacks in both children and adults¹⁰
- 80-85% of COPD exacerbations are associated with viral or bacterial respiratory tract infections with rhinovirus and Haemophilus influenzae thought to be the major contributors¹¹

References

1. P. Wark et al. Asthmatic bronchial epithelial cells have a deficient innate immune response to infection with rhinovirus. *J Exp Med.* 2005; 201: 937-947
2. American Lung Association. Trends in Asthma Morbidity and Mortality. January 2009 www.lungusa.org
3. National Heart Lung and Blood Institute, Morbidity and Mortality: 2007 Chartbook on Cardiovascular, Lung and Blood Diseases
4. V. Krishnan et al. Mortality in patients hospitalized for asthma exacerbations in the United States. *Am J Respir Crit Care Med* 2006 174, 633-638
5. P.J. Barnes, B. Johnson, J.B. Klim. The Costs of Asthma. *Eur Respir J* 1996 9, 636-642
6. World Health Organisation website (<http://www.who.int/respiratory/copd/burden/en/index.html>)
7. Centers for Disease Control and Prevention. National Center for Health Statistics. National Health & Nutrition Examination Survey, 1988-1994
8. American Lung Association: Trends in COPD (chronic bronchitis and emphysema): Morbidity and Mortality. December 2007 www.lungusa.org
9. American Lung Association: Cold and Flu Guidelines: The Common Cold www.lungusa.org
10. J.T. Kelly et al. Host immune responses to rhinovirus: Mechanisms in asthma. *J Allergy Clin Immunol* 2008; 122: 671-682
11. A. Sethi et al. Infection in the Pathogenesis and Course of Chronic Obstructive Pulmonary Disease. *N Engl J Med* 2008; 359: 2355-65