

- 18 **Blanco LN**, Massaro GD, Massaro D. Alveolar dimensions and number: developmental and hormonal regulation. *Am J Physiol-Lung C* 1989;**257**:(4 Pt 1).
- 19 **Willet KE**, Jobe AH, Ikegami M, *et al*. Lung morphometry after repetitive antenatal glucocorticoid treatment in preterm sheep. *Am J Respir Crit Care Med* 2001;**163**:1437–43.
- 20 **Royal College of Obstetrics and Gynaecology**. *Scottish obstetric guidelines and audit project: preterm delivery – the preparation of the fetus*. London: Royal College of Obstetrics and Gynaecology, 1997.
- 21 **Crowther CA**, Harding JE. Repeat doses of prenatal corticosteroids for women at risk of preterm birth for preventing neonatal respiratory disease. *Cochrane Database of Syst Rev* 2003.
- 22 **Ikegami M**, Jobe AH, Newnham J, *et al*. Repetitive prenatal glucocorticoids improve lung function and decrease growth in preterm lambs. *Am J Respir Crit Care Med* 1997;**156**:178–84.
- 23 **Northway WH Jr**, Rosan RC, Porter DY. Pulmonary disease following respirator therapy of hyaline-membrane disease. Bronchopulmonary dysplasia. *N Engl J Med* 1967;**276**:357–68.

LUNG ALERT

A novel form of receptor interaction may contribute to β -agonist resistance in asthma

▲ McGraw DW, Muhlbacher KA, Schwarb MR, *et al*. Airway smooth muscle prostaglandin-EP₁ receptors directly modulate β_2 -adrenergic receptors within a unique heterodimeric complex. *J Clin Invest* 2006;**116**:1400–9

In attempting to elucidate the hitherto poorly understood action of the prostanoid-EP₁ receptor, researchers in the US have uncovered a new type of receptor interaction and demonstrated its action on murine airway smooth muscle contraction.

Prostaglandin E₂ (PGE₂) produces its diverse biological effects by acting on four endogenous receptor subtypes (EP₁–EP₄). The authors set out to define the action of the EP₁ receptor. In a series of experiments they first showed that activation of EP₁ receptors by PGE₂ failed to cause contraction of mouse tracheal ring, as might have been expected, but did cause a marked reduction in β_2 adrenergic receptor (β_2 AR) mediated relaxation. This was shown to be mediated at the level of the receptor itself. This suggested an interplay between the EP₁ receptor and the β_2 AR, with activation of the former resulting in decreased function of the latter. They went on to demonstrate coupling of the two receptors into a heterodimer. Activation of the EP₁ receptor within the heterodimer causes a conformational change in the β_2 AR, uncoupling it from its G protein with resultant desensitisation to β_2 AR agonists.

This study demonstrates a novel modulatory function of the EP₁ receptor in regulating the action of the β_2 AR. This may contribute to the reduced response to β_2 AR agonists in severe asthma, when there may be increased concentrations of endogenous PGE₂.

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LUNG ALERT

Short course antibiotics in community acquired pneumonia

▲ El Moussaoui R, de Borgie CA, van den Broek P, *et al*. Effectiveness of discontinuing antibiotic treatment after three days versus eight days in mild to moderate-severe community acquired pneumonia: randomised, double blind study. *BMJ* 2006;**332**:1355–8

This Dutch study, undertaken between November 2000 and July 2003, took adults with a pneumonia severity index score of ≤ 110 and randomly assigned those who substantially improved after 72 hours of intravenous amoxicillin to either 750 mg oral amoxicillin (n = 63) or placebo (n = 56) three times daily for 5 days thereafter.

Clinical, bacteriological and radiological outcomes were assessed. The clinical success rate at day 10 (per protocol analysis) was 93% in both groups (50/54 in the 3 day treatment group and 56/60 in the 8 day treatment group: difference 0.1% (95% CI –9 to 10)). At day 28 clinical success rates were 90% (47/52) in the 3 day treatment group and 88% (49/56) in the 8 day treatment group (difference 2% (95% CI –9 to 15)). There was therefore little difference between the two groups.

This study suggests that a short course of antibiotic therapy is not inferior to a longer course in patients with mild to moderate-severe uncomplicated community acquired pneumonia who show clinical improvement after 3 days of intravenous antibiotics.

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