

# Aetiology of preterm labour

Session 2: Chairman  
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1st International Preterm Labour Congress, Montreux, Switzerland, June 2002



# **Classification and heterogeneity of preterm birth**

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1st International Preterm Labour Congress, Montreux, Switzerland, June 2002



# Neonatal outcome

	Weeks	Mortality	Morbidity
Mildly preterm	32–36	Low	Low
Very preterm	28–31	Moderate	Serious
Extremely preterm	<28	High	High



# Preterm birth – categories

	%	Range	Sherbrooke
Medically-indicated	25	8.7–35.2	19.4
Preterm PROM	25	7.1–51.2	46.7
Spontaneous preterm labour	50	23.2–64.1	33.9



# The case of multiple pregnancies

- Prevalence: 0.8% up to 3.0% (ART)
- Contribution preterm birth: 10% up to 18%
- Overall, 50% of multiple pregnancies are delivered preterm for medical reasons



# Gender aspects to preterm birth

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University Hospital, Lund, Sweden

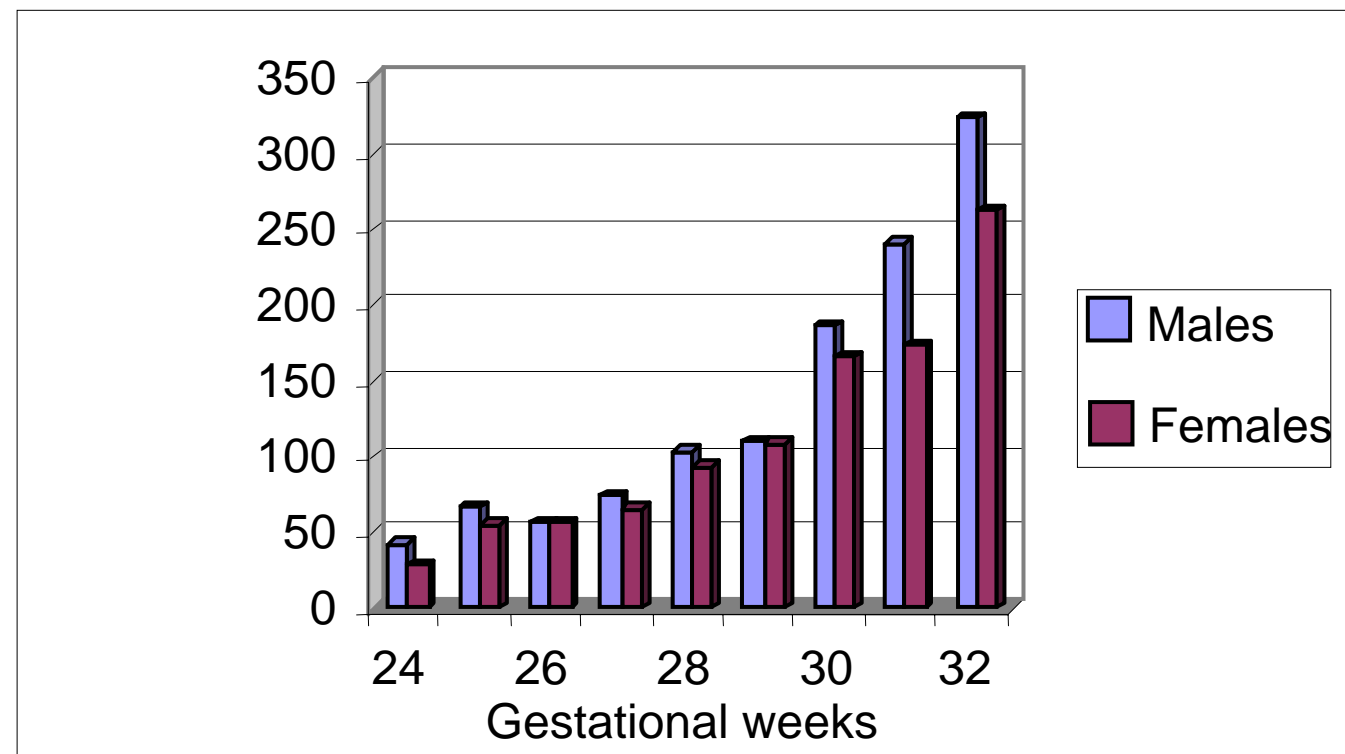
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# Number of births in gestational weeks 24-32 in Sweden 1999–2000

Live born males 1.30%; neonatal mortality 9.1%

Live born females 1.12%; neonatal mortality 5.6%



# Caesarean section and gender

Caesarean section	Males	Females	Adjusted OR* (95% CI)
For failure to progress	10.4%	7.8%	1.04 (0.8–1.4)
For fetal distress	2.8%	1.7%	2.20 (1.3–4.0)

\*Adjusted for birth weight, gestational age, and head circumference

*Lieberman et al. Am J Obstet Gynecol 1997; 176: 667*





# Gender differences

## Pulmonary hypoplasia after preterm rupture of membranes

Mean (SD) or number and percent

	Yes n=15	No n=39
Gestational age at PROM (wk)	23.6 (3.2)	26.4 (2.5)
Gestational age at delivery (wk)	28.3 (2.7)	28.2 (1.8)
Sex, males/total, (%)	10/15 (67 %)	15/39 (38)

*Vergani et al. Am J Obstet Gynecol 1994; 170: 1359*

**Ingemar Ingemarsson**



# Gender differences

**Is the male fetus involved in the onset of preterm birth?**

- Labour promoted by oestrogen production from androgen precursors that may be increased in males?

*(Nathanielsz and Meyers 1993, Romero et al 1988, Winther 1994)*

- Labour promoted by interleukin-1 due to low antagonist levels in amniotic fluid in males?

*(Bry et al 1995, Romero et al 1991)*

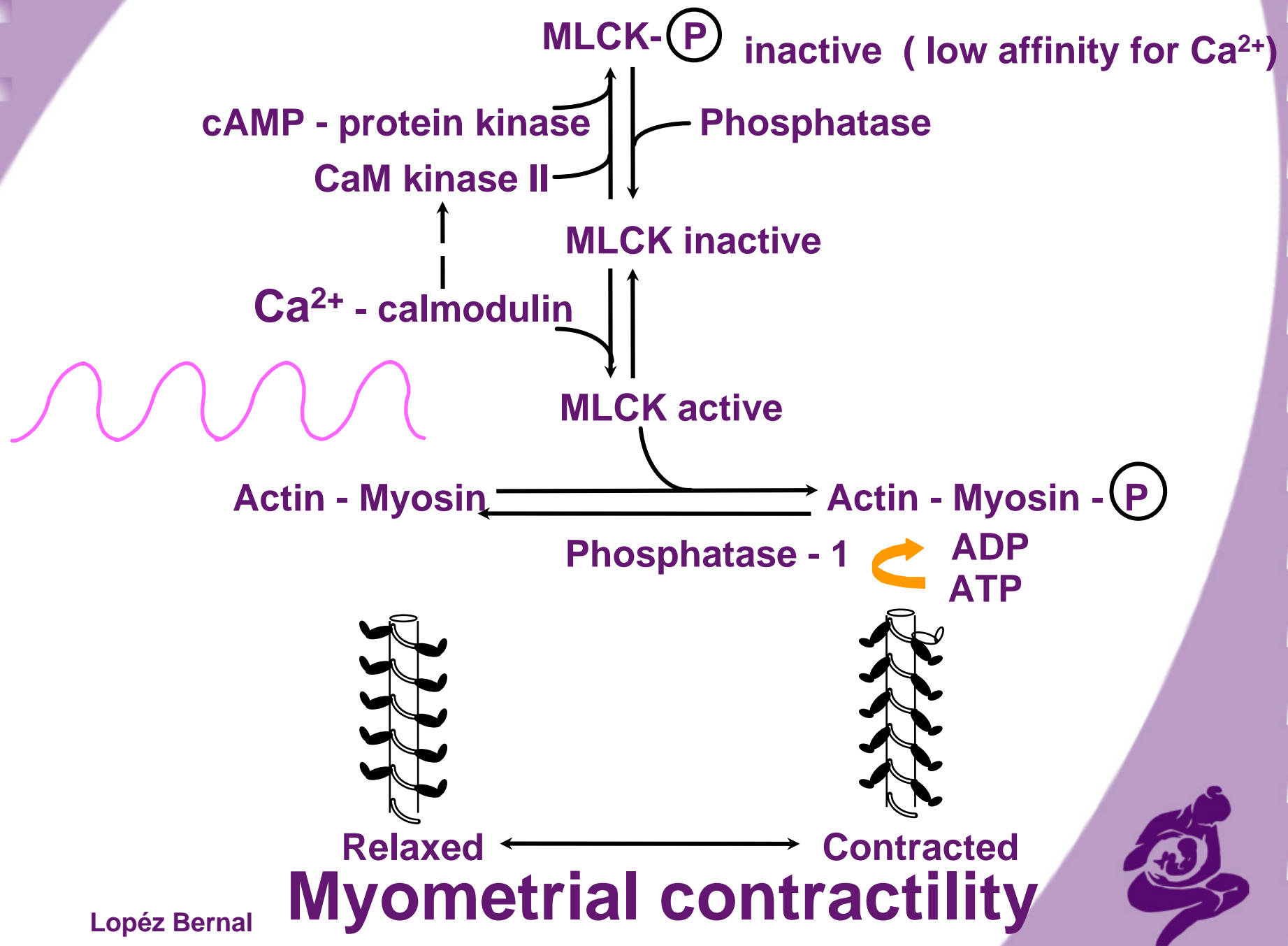


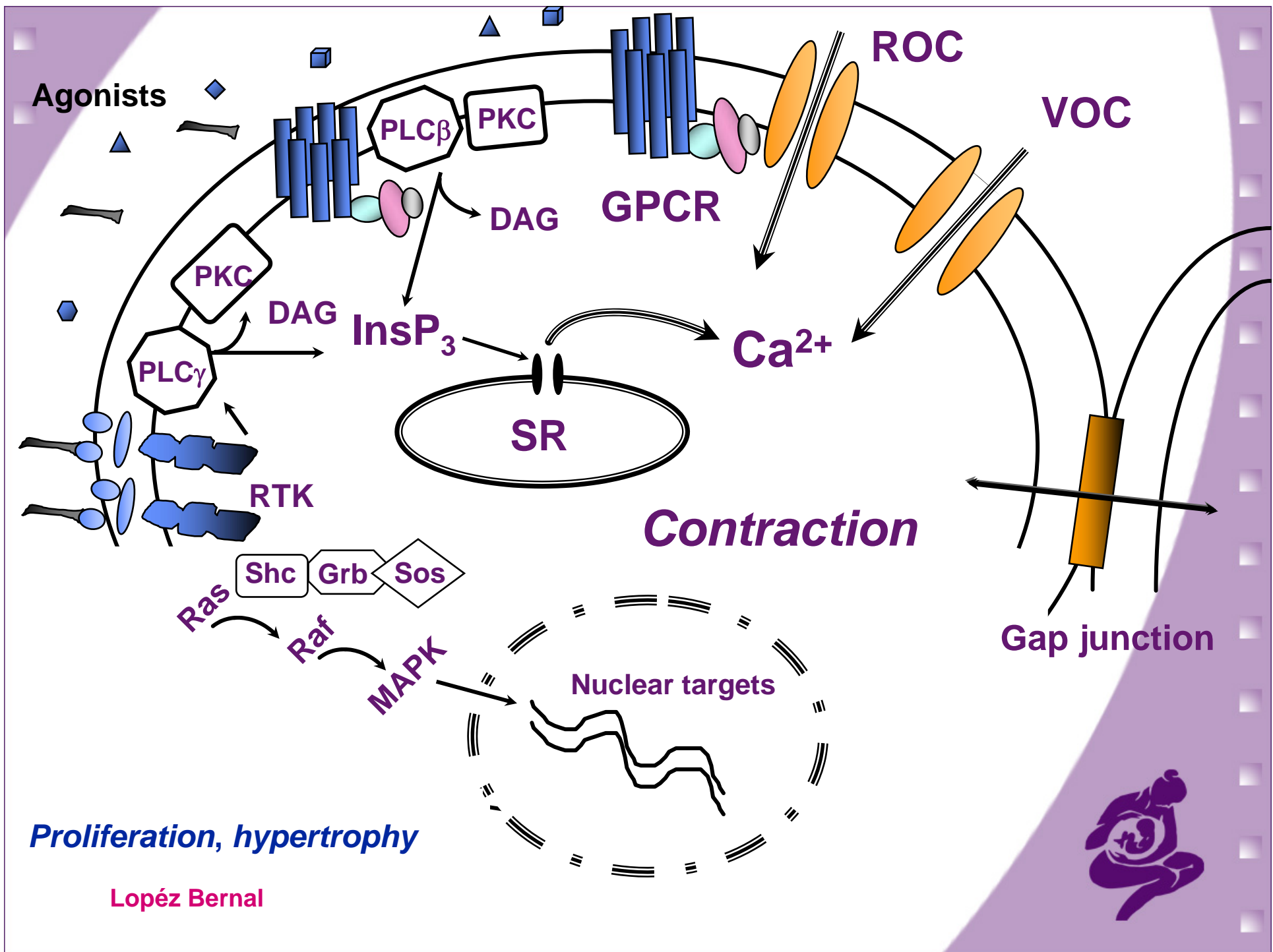
# Mechanisms of labour – biochemical aspects

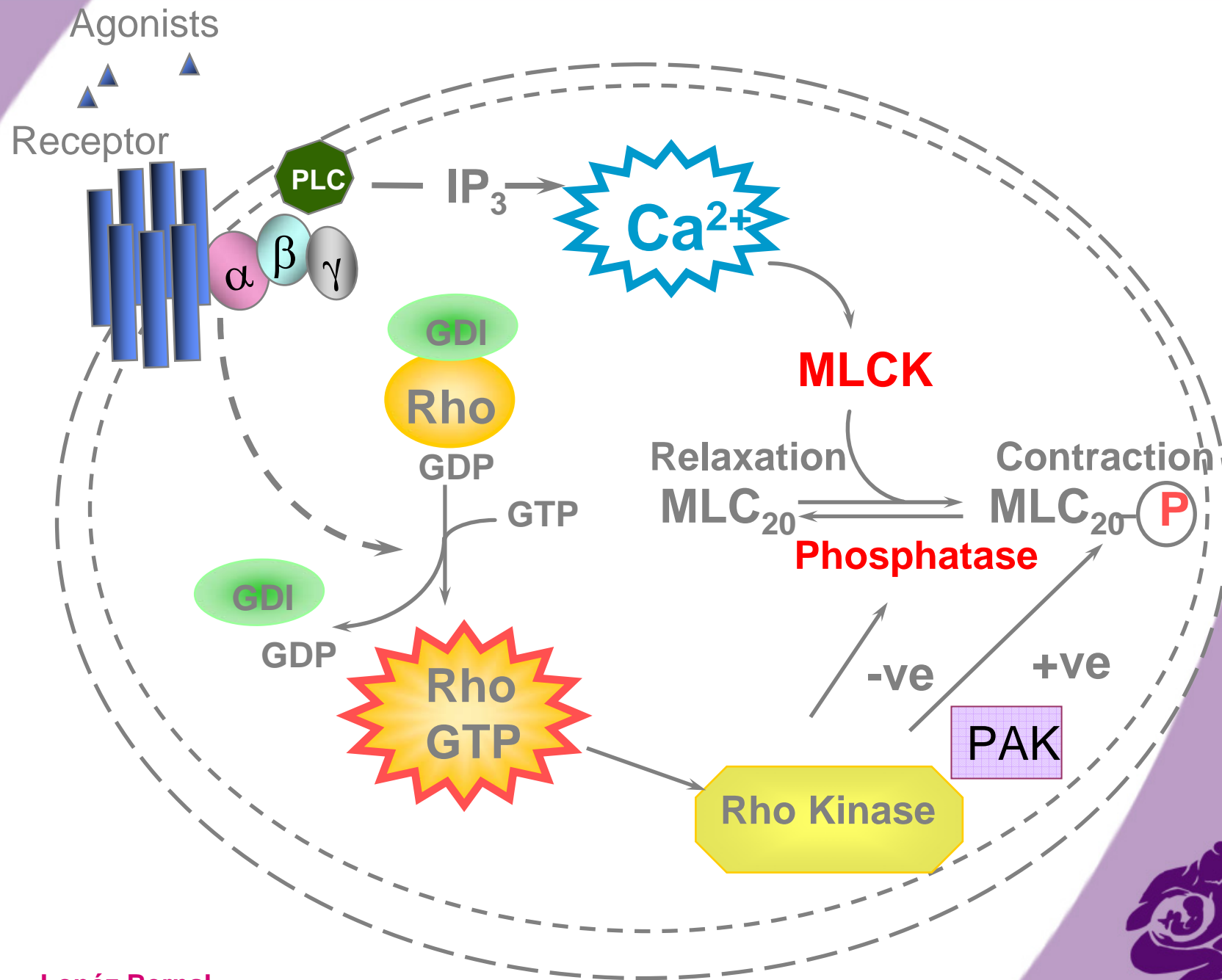
Professor Andrés López Bernal  
University of Bristol, UK

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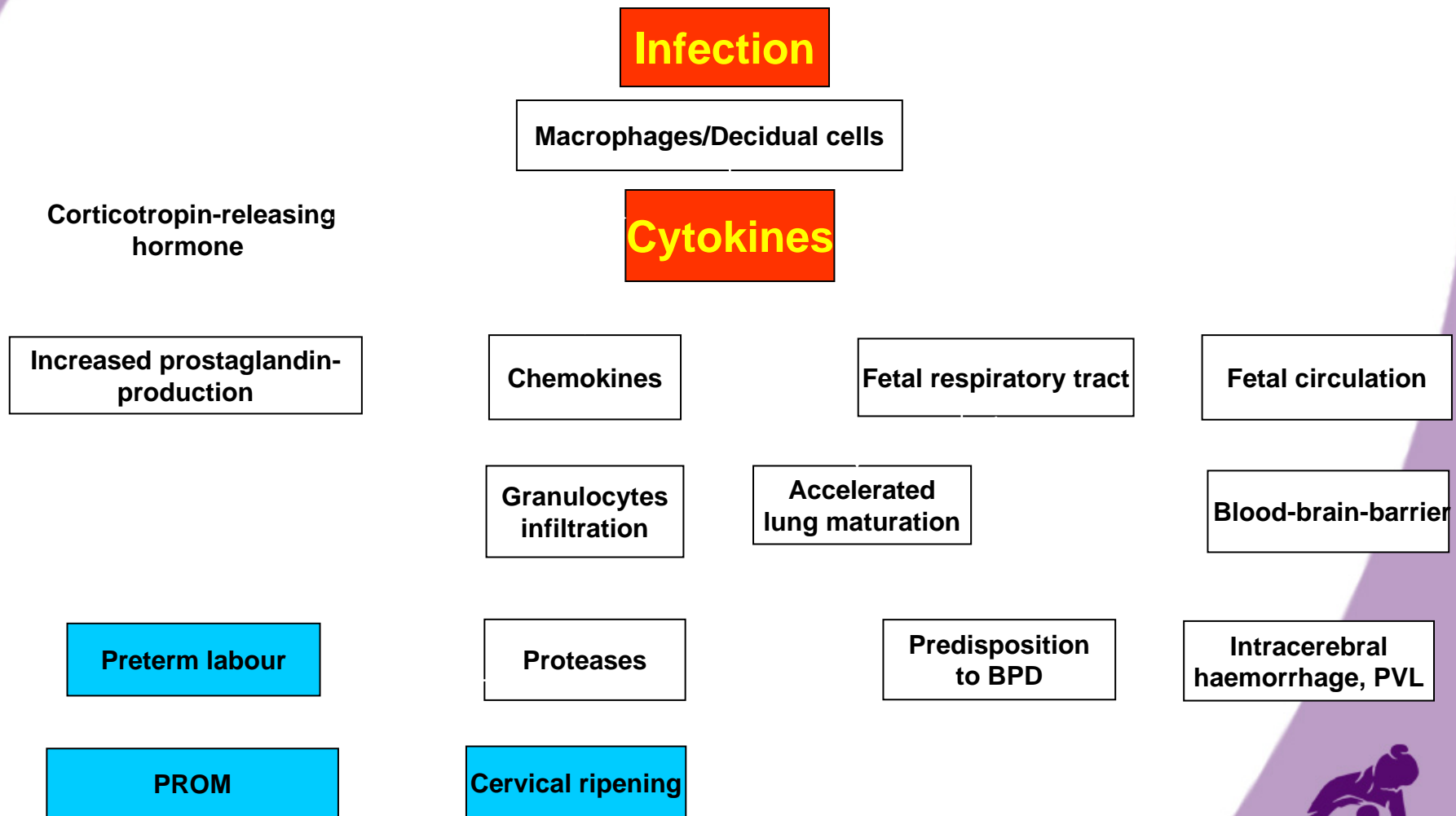
# The role of infection in preterm labour

Professor Klaus Friese  
University of Rostock, Germany

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# Association between infection, cytokines and preterm delivery

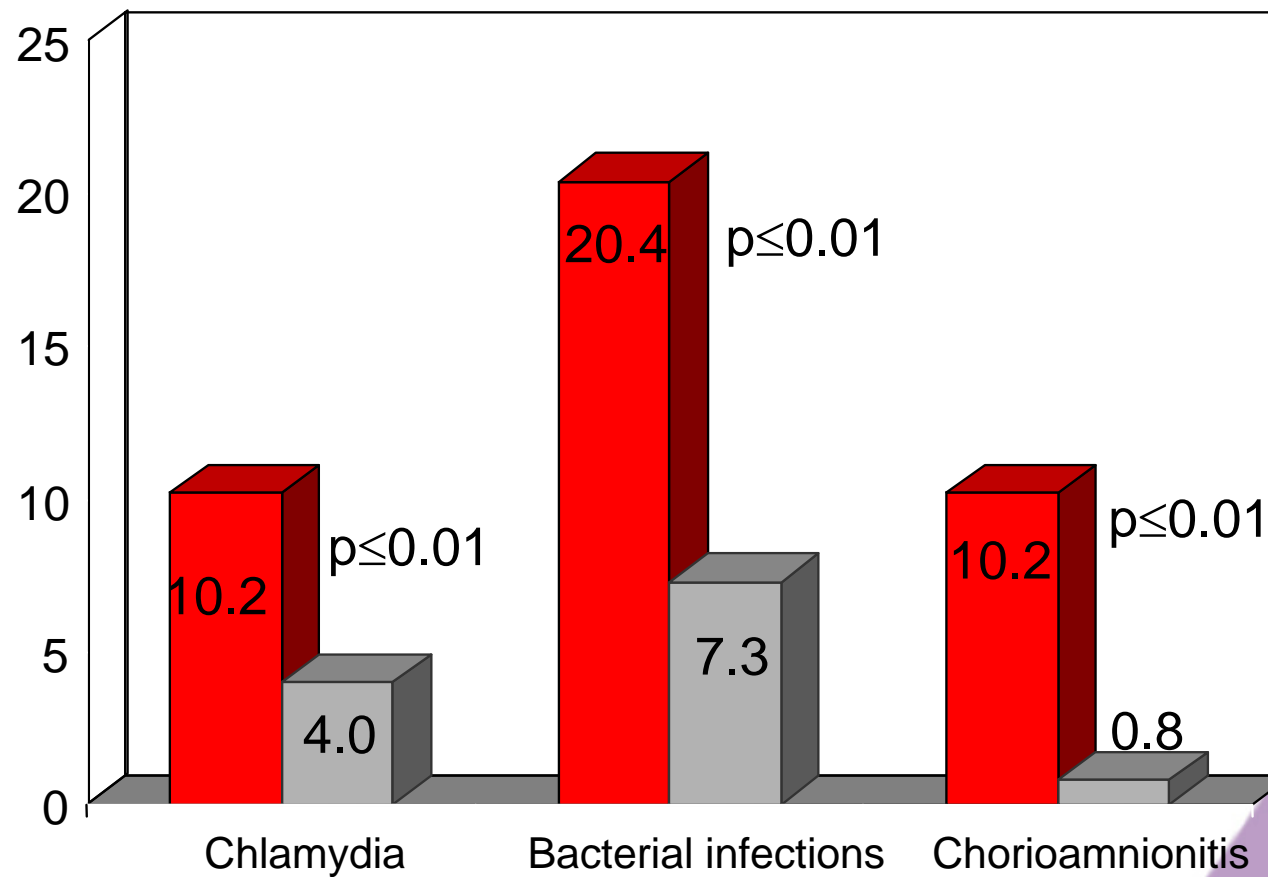




# Frequency of cervical infections

Preterm group (n=147)

Control group (n=1368)

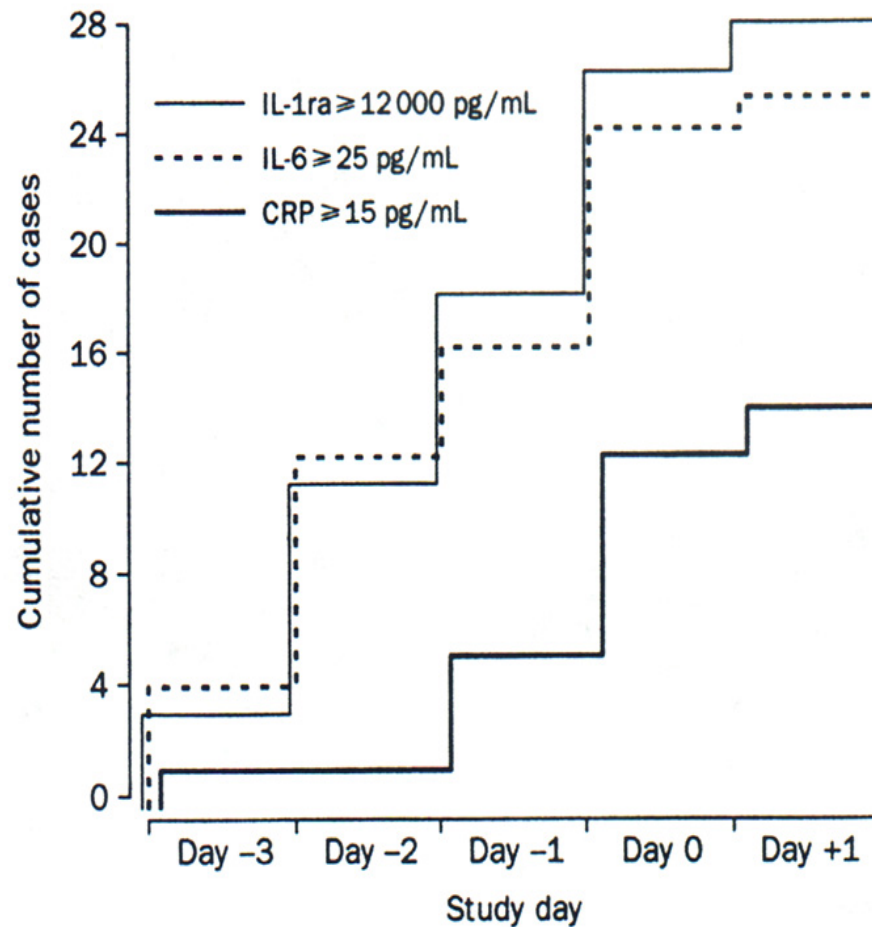


Klaus Friese

*Barten G, Ohde A, et al. 1996*



# Cumulative incidence of increased concentrations of IL-1ra, IL-6 and CRP in preterm newborns with sepsis



# Intrauterine infection and intraventricular haemorrhage (IVH)

- Early gestational age correlates with increased frequency of IVH
- Preterm newborns with histological detected amnionitis have a 3-4 fold risk for developing IVH



# Conclusions

- Two goals could be proposed for future approaches:
  - develop new non invasive methods to pinpoint the aetiological diagnosis of PTL in a prospective manner
  - understand the pathophysiological mechanisms of PTL to better design therapeutic strategies
- We are still far away from these two goals

Dominique Cabrol

