



## PRESS RELEASE

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### EPO: PROTECTING THE BRAINS OF VERY PRETERM INFANTS

Premature babies are far more at risk than infants born at term of developing brain damage resulting in neurodevelopmental delay that may persist throughout their lives. A team of specialists in infant brain imaging from the Faculty of Medicine at the University of Geneva (UNIGE) and the University Hospital of Geneva (HUG) has demonstrated the following: administering three doses of erythropoietin – a hormone that stimulates the formation of red blood cells – immediately after birth significantly reduces brain damage in babies. The results are available in more detail in the *Journal of American Medical Association (JAMA)*.

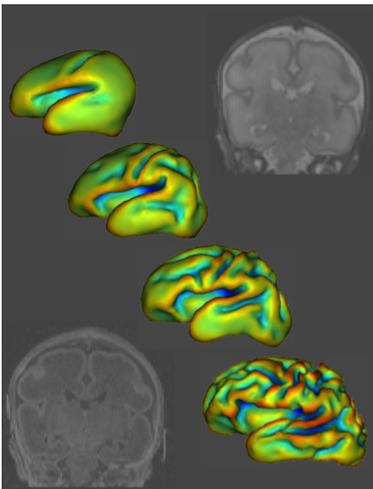
Nearly 400,000 children are born in Europe every year before the 32nd week of pregnancy (and 2.6 million worldwide, according to the World Health Organisation), including around 80 at HUG. There are numerous health implications for children who are born so prematurely, including brain damage and incomplete maturation of the brain, especially the white matter responsible for propagating information in the nervous system. New imaging techniques, including magnetic resonance imaging (MRI) – a non-invasive method with no radiation exposure – make it possible to identify brain damage at an early stage that could have long-term consequences on a child's development: including motor and cognitive problems, attention and learning difficulties leading to loss of human capital.

#### EPO: a well-known hormone

Synthetic erythropoietin (EPO) – whose doping effects amongst athletes are well-known – is a treatment commonly used to prevent anaemia; it is also used in preterm infants, as it reduces the need for blood transfusions. A number of recent studies have shown that the same hormone also has a neuroprotective effect. The Geneva team, led by Petra Susan Hüppi, professor in the Faculty of Medicine at UNIGE and head of the Division of Development and Growth in the Department of Paediatrics at HUG, set out to verify the impact of EPO on premature babies brain. They reviewed the MRI scans of 165 children, half of whom had received three doses of EPO within two days of birth. "We found that the brains of the children who had received the treatment had much less damage than those in the control group, who had been given a placebo," explains Russia Ha-Vinh Leuchter, co-author of the study: "This is the first time that the beneficial effect of the EPO hormone on the brains of premature babies has been shown."

#### The first chapter in a nationwide study

The research is led by Geneva and forms part of an extensive Swiss study carried out in cooperation with the University of Zurich, cove-



MRI scan of the brain development of a premature baby  
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ring 495 children born in Switzerland between 2005 and 2012. The second – and main – part of the work will focus on the neurocognitive development of these children, who will take part in various developmental tests at the age of two and five years. As professor Petra Hüppi explains: “State-of-the-art developmental testing as performed in our Swiss Developmental Pediatric units should confirm the effect that EPO treatment has on the neurodevelopmental disabilities that very premature babies often show during their infancy.” The professor concludes: “If this does turn out to be the case, we will have taken an important step in preventing brain damage and its longterm consequences in premature babies.” The main findings of the study, therefore, are yet to come.

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