

neobrain

an international research consortium funded by the EU
committed to protecting the newborn brain



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current situation

- ❑ infant mortality decreases
- ❑ 4 million live births per year in EU
- ❑ increasing number of surviving preterm infants
- ❑ around one child in ten born is born preterm
- ❑ around 400,000 preterm infants (source: EUROSTAT) in EU

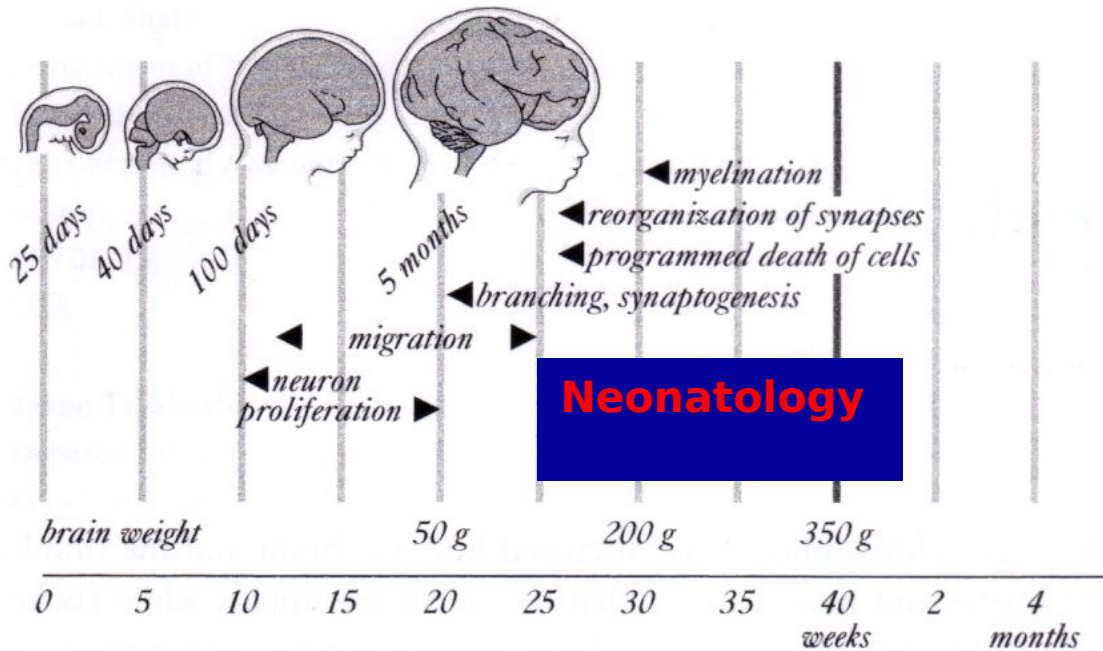


problems I

- immaturity of lung, gut, eye and brain



problems II



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from: "The Newborn Brain: Neuroscience and Clinical Applications, Philippe Evrard, Mark Hanson, and Hugo Lagercrantz Cambridge University Press (2001)"

**Insults during pregnancy can cause
brain damage or alter brain
development**

problems III

long term issues

- motor disabilities
- visual limitations
- cognitive limitations
- learning difficulties
- attention deficits



problems IV

- serious burden on the children, their parents and relatives
- and on society:
 - EU-wide 40,000 preterm infants per year are at highest risk of brain damage
 - EU-wide ca. 20,000 preterm infants per year have a birth weight below 1000g
 - clinical treatment of one infant with a birthweight below 1000g costs around €100,000 over two years (in total 2 billion euros over 2 years)
 - treatment of one child with severe disabilities over a life-time costs about US\$500,000 (at 1992 levels)

total cost EU-wide: ca. 7-8 billion euros per year



problems V

NO marker for early diagnosis

&

NO prophylaxis and therapy for brain protection



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search for solution



**Neonatal Estimation Of Brain Damage Risk
And Identification of Neuroprotectants**

Specific Targeted Research Project dedicated to Small and Medium-Sized Enterprises

objectives: medical improvements I

- to start international perinatal basic research into protecting the brain at the interface with the clinical care
- to diagnose neonatal brain damage early on via biomarkers
- to develop new neuroprotective strategies in newborn infants
- to support "theranostics", i.e. monitoring the success of therapies for newborns through biomarkers

The logo for 'neobrain' features the word 'neobrain' in a light blue, lowercase, sans-serif font. To the right of the text is a stylized, light blue outline of a human figure in a fetal or newborn position. Above the figure and text are several yellow stars of varying sizes, arranged in a semi-circular pattern, reminiscent of the European Union flag.

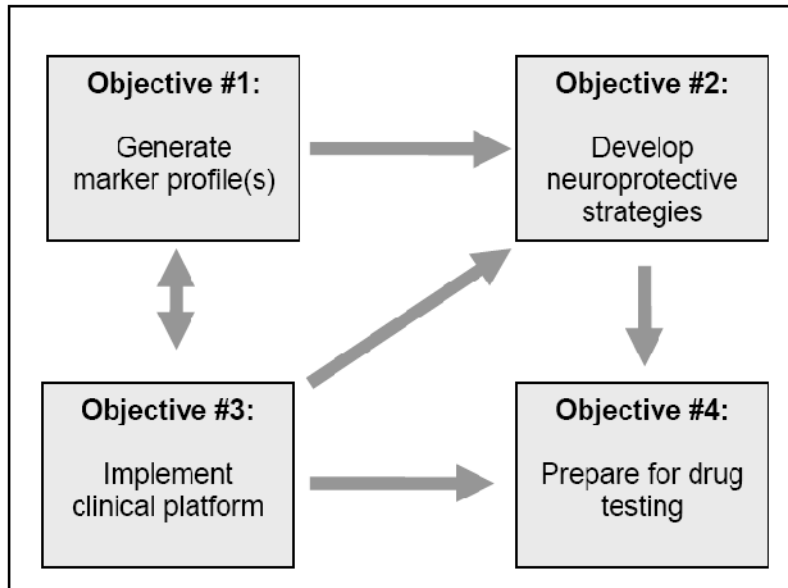
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objectives: medical improvements II

- to develop marketable instruments for implementing these objectives in neonatal intensive care
- to contribute to medical standards for improving medical care of preterms



implementation



objective #1

to identify biomarkers of early brain damage and as a basis for developing new strategies for protecting the brain

objective #2

to develop new therapies for protecting and/or regenerating the neonatal brain

objective #3

to prepare the ground for a clinical study to identify human biomarkers on the basis of genetic and biochemical markers, electroencephalographic (EEG) patterns and magnetic resonance imaging (MRI).

objective #4

to create a platform for clinical drug testing during the three-year project period and beyond.

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partners



small and medium-sized enterprises (5)

- BIOCRATES life sciences GmbH Austria
- BioAnalyt GmbH Germany
- Theraptosis France
- Neuropharma Spain
- BrainZ New Zealand

academic partners (8)

- Medizinische Hochschule Hannover Germany
- Charité, Universitätsmedizin Berlin Germany
- Università degli Studi di Siena Italy
- University Medical Center Utrecht Netherlands
- Göteborgs Universitet Sweden
- Lunds Universitet Sweden
- Institut National de la sante et de la Recherche Medicale, Paris France
- Universite de Geneve – Hopitaux de Geneve Switzerland

small end medium enterprises

Partic . no.	Participant name	Team	Country
2	BIOCRATES life sciences GmbH Innsbruck	Matthias Keller , Klaus Weinberger, Georg Simbruner, Armin Graber	Austria
3	BrainZ	Justin Vaughan, Tom Pantano , Peter Gluckman, Terrie Inder, Gorm Greisen	New Zealand
4	BioAnalyt GmbH	Florian J. Schweigert	Germany
5	THERAPTOSIS S.A.	Etienne Jacotot , David Chauvier	France
6	NEUROPHARMA	Ana Martínez	Spain

academic partner

Partic . no.	Participant name	Team	Country
1	Medizinische Hochschule Hannover	Olaf Dammann , Hartmut Hecker, Frank Biertz, Thilo Dörk, Marjan Brinkhaus, Wolfgang Büter	Germany
7	University Medical Center Utrecht	Cobi J. Heijnen, Linda de Vries , Annemieke Kavelaars, Frank van Bel, Linda De Vries, Floris Goenendaal	Netherlands
8	Göteborgs universitet	Henrik Hagberg, Carina Mallard	Sweden
9	Institut National de la santé et de la Recherche Médicale	Pierre Gressens , Olivier Baud	France
10	Université de Genève-Hôpitaux Universitaires de Genève	Petra Hüppi, Stephane Sizonenko , Rolf Gruetter	Switzerland
11	Charité Universitätsmedizin Berlin	Ursula Felderhoff-Müser	Germany
12	Università degli Studi di Siena	Giuseppe Buonocore , Walter Balduini	Italy
13	Lunds Universitet	Lena Hellström-Westas, Vineta Fellman , David Ley	Sweden

budget

- project volume:
4.4 million euros
- grant volume:
3.3 million euros



benefits for partners

- science and teaching
- the economy
- patient care (children)



benefits for science & teaching

- first-rate basic and clinical research within an international consortium
- direct knowledge transfer through close cooperation among leading European researchers and research companies
- international recognition as research site in the areas of neonatal and neurological research
- training opportunity for young scientists

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benefits for the economy

- close links with first-rate scientific and clinical research groups all over Europe
- an opportunity to become European leaders in the diagnosis of perinatal brain damage
- new markets in clinical diagnostics and theranostics
- highly skilled jobs for the participating regions



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benefits for the children

- introduction of state-of-the-art medicine locally
- securing the best possible treatment to avoid perinatal brain damage
 - research immanent quality control
 - participating in the development of standards in cooperation with major diagnostic centres



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... *to give these newborn babies the best possible start in life*



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