

EUROPEAN TASK FORCE ON BRAIN AND NEURODEGENERATIVE LYSOSOMAL STORAGE DISEASES

COORDINATORS: MAURIZIO SCARPA, DEPT. OF PEDIATRICS UNIVERSITY OF PADOVA, PADOVA, ITALY
DAVID BEGLEY, BBB GROUP, KINGS COLLEGE LONDON, LONDON, UK

BRAINS FROM BRAIN

BRAINS FOR BRAIN (B4B) IS A GROUP OF OUTSTANDING SCIENTISTS AND CLINICIANS WORKING TOGETHER WITH BIOTECH COMPANIES TO STIMULATE AND COLLABORATE RESEARCH ON PEDIATRIC NEURODEGENERATIVE DISORDERS IN PARTICULAR LYSOSOMAL STORAGE DISEASES (LSDs).

THE CONSORTIUM WAS PROPOSED IN VENICE, ITALY, ON JUNE 2006 DURING THE INTERNATIONAL SYMPOSIUM ON MUCOPOLYSACCHARIDE AND RELATED DISEASES (FIG. 1), A BIENNIAL MEETING WHERE SCIENTISTS, PHYSICIANS AND FAMILIES MEET TOGETHER TO UPDATE AND DISCUSS ABOUT LYSOSOMAL STORAGE DISORDERS AND THEIR PROBLEMS.

WHAT IS THE BLOOD BRAIN BARRIER (BBB)

- THE BBB IS FORMED BY THE SMALLEST BLOOD VESSELS IN THE BRAIN, THE CAPILLARIES.
- THE BBB PREVENTS THE FREE MOVEMENT OF SMALL AND LARGE MOLECULES FROM BLOOD TO BRAIN AND VICE VERSA.
- MOLECULES THAT THE BRAIN NEEDS ARE TRANSPORTED ACROSS THE BARRIER.
- THE BARRIER IS A PHYSICAL BARRIER TO FREE DIFFUSION.
- THE BARRIER IS A TRANSPORT BARRIER, BOTH IN AND OUT.
- THE BARRIER IS ALSO A METABOLIC BARRIER, ERT TREATMENT IS NOT CROSSING THE BBB
- THE BBB CONTAINS A NUMBER OF TRANSPORT PROCESS WHICH TAKE LARGE MOLECULES SUCH AS PROTEINS INTO THE BRAIN.
- WE NEED TO UNDERSTAND THESE TRANSPORTERS FOR MACROMOLECULES SO THAT WE CAN ADAPT ERT TO CROSS THE BBB AND TREAT THE BRAIN. (FIG.3)

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9^o Simposio Internazionale sulle Mucopolisaccaridosi e Malattie Affini
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FIGURE 1

THE MISSION OF BRAINS FOR BRAIN

• TO CATALYSE RESEARCH IN THE FIELD OF NEURODEGENERATION AND LSDs;

• TO CREATE AND COORDINATE EFFORT TOWARDS THE COMPREHENSION OF THE PATHOPHYSIOLOGY OF CNS DISORDERS OCCURRING IN LSDs.

• TO IMPLEMENT KNOWLEDGE OF BBB FUNCTION AND TO DEVELOP OF NEW MOLECULAR AND OR BIOCHEMICAL STRATEGIES TO OVERCOME THE BBB AND TO TREAT NEUROLOGICAL DISORDERS.

THE ACHIEVEMENT OF THESE TARGETS WILL ALLOW THE DEVELOPMENT OF NEW APPROACHES FOR THERAPY OF THE NEUROLOGICAL COMPLICATIONS OF LSDs PATIENTS.

CLOSE COLLABORATION WITH BIOTECH COMPANIES DOES GUARANTEE THE PROPER SCALING UP AND IMPLEMENTATION OF DRUG PRODUCTION.

B4B IS LOOKING FOR INDUSTRIAL INTERACTION TO SET UP PHASE I CLINICAL TRIALS TO BRING THERAPY TO THE BRAIN.

BRAINS FOR BRAIN MEMBERS

AT THE MOMENT B4B ACCOUNTS 60 INSTITUTES AND 8 BIOTECHS FROM THE FOLLOWING COUNTRIES:

DENMARK, FRANCE, GERMANY, GREECE, ISRAEL, ITALY, SPAIN, SWEDEN, THE NETHERLANDS, RUSSIA AND UNITED KINGDOM.

FURTHERMORE, INSTITUTES FROM AUSTRALIA, BRASIL AND USA ARE COLLABORATING WITHIN THE B4B CONSORTIUM

B4B IS COLLABORATING WITH FAMILY ASSOCIATIONS, ORPHANET, G.O.L.D, AND THE EUROPEAN BRAIN COUNCIL.

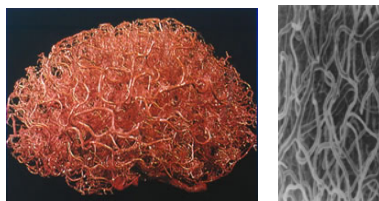


FIGURE 2: THE BLOOD BRAIN BARRIER

B4B RESEARCH EXPERTISE

EXCELLENCE IS AVAILABLE IN THE FOLLOWING RESEARCH FIELDS:

- MOLECULAR BIOLOGY
- BIOMARKER RESEARCH
- CELLULAR BIOLOGY
- CHANNEL AND JUNCTION TECHNOLOGIES
- PROTEIN MODIFICATION
- TRANSPORT STUDIES
- IN VITRO ANIMAL AND HUMAN MODELS FOR BBB
- GENERATION OF ANIMAL MODELS FOR LSDs
- VIRAL AND NON VIRAL VECTORS FOR GENE THERAPY
- SMALL MOLECULES AND CHAPERONES
- BIOCOMPATIBLE DEVICES FOR GENE EXPRESSION
- STEM CELL TECHNOLOGY

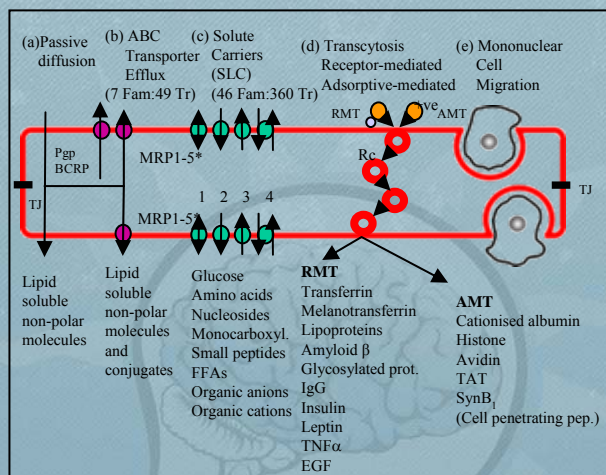


FIGURE 3: ROUTES ACROSS BBB

B4B CLINICAL EXPERTISE

B4B EXCELLENCE HAS ALSO BEEN DEVELOPED ON THE CLINICAL SIDE.

ALL THE MAJOR EUROPEAN INSTITUTES ARE INVOLVED IN THE DIAGNOSIS, FOLLOW UP AND TREATMENT OF LSDs PATIENTS ARE WITHIN THE B4B CONSORTIUM CLINICAL MEMBERS HAVE CONTRIBUTED TO:

- THE DEVELOPMENT OF PHASE III AND III ENZYME REPLACEMENT THERAPY AND SMALL MOLECULES TRIALS.
- THE DEVELOPMENT OF NATURAL HISTORY STUDIES FOR SPECIFIC LSDs
- THE DEVELOPMENT OF REGISTRIES FOR THE STUDY OF EFFICACY AND SAFETY OF TREATMENTS.

B4B CONSORTIUM DOES ACKNOWLEDGE THE COMMITTEMENT OF LSDs FAMILY ASSOCIATIONS AND THE SUPPORT OF ACTELION, BIOMARINE, GENZYME AND SHIRE HGT.