



EUROPEAN PAEDIATRIC TRANSLATIONAL RESEARCH INFRASTRUCTURE

Institute of Pediatrics, Obstetrics and Gynecology: review, experience and prospective research

Prof. Rostyslav Marushko

General Assembly Meeting – Brussels, 2-3 April 2020



This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 777554

KYIV, UKRAINE



State Institution "Institute of Pediatrics, Obstetrics and Gynecology named after academician O. Lukyanova of National Academy of Medical of Ukraine"

Director of the Insitute



Academician of the National Academy of Medical Sciences of Ukraine, doctor of medical sciences, professor

President of the Association of Pediatricians in Ukraine

Member of European Pediatric Association and American Academy of Pediatrics

EPTRI: POLITICAL SUPPORT OF UKRAINIAN STATE AUTHORITY

**Ministry of Education
and Science of Ukraine**



МІНІСТЕРСТВО
ОСВІТИ І НАУКИ
УКРАЇНИ



Ministry of Health of Ukraine



Ukrainian Joint Research Unit - EPTRI-UKR

1. RE KAVETSKY INSTITUTE OF EXPERIMENTAL PATHOLOGY, ONCOLOGY AND RADIOBIOLOGY, NATIONAL ACADEMY OF SCIENCES OF UKRAINE
2. STATE INSTITUTION "INSTITUTE OF PHARMACOLOGY AND TOXICOLOGY OF NAMN OF UKRAINE
3. STATE INSTITUTION "INSITUTE OF GENETIC AND REGENERATIVE MEDICINE OF NAMS OF UKRAINE"
4. **STATE INSTITUTION "INSTITUTE OF PEDIATRICS, OBSTETRICS AND GYNECOLOGY OF NAMS OF UKRAINE"**
5. GROUP OF COMPANIES "LEKHIM"
6. BIOBANK ASSOCIATION OF UKRAINE

SI «IPOG NAMS of Ukraine – mission

- **Was founded in 1929**
- **Mission – contribute to provision of high quality medical care in the field of maternity and childhood in the country**



Main tasks in pediatrics

- **develop and implement new technologies to support children health;**
- **research broad range of different children pathology including autoimmune, allergic disorders and orphan diseases;**
- **research the impact of negative environmental factors on health of children**



Structure and main areas of activities

Operating in the country as:

- largest referral pediatric hospital
- perinatal centre of third level
- active centre of clinical trials



**25 research and 27 clinical departments,
6 specialized centres, 11 laboratories,
3 diagnostic units**

Main tasks in obstetrics/perinatology

- **provide high quality medical care for women of fertile age with increased risks of pregnancy and reproductive health problems.**
- **perinatal protection of the fetus and newborn including prenatal diagnosis of congenital malformations;**



Scientific projects

Placenta research



Placenta research

Chernobyl accident (since 1986 - present)



- Study of the exposure to low-dose ionizing radiation on fetoplacental complex
- Duration - 25-30 years
- Incorporated radionuclides (**Cs-137**) into placenta in concentration ranged from 0,5 till more than 4,8 Bq/kg

Placenta research

Certificate of placenta

**Name, age, occupation, place of residence, pregnancy.
Baby's name, weight, height, gender, live birth, stillbirth,
Apgar score, diagnosis.**

The size and mass of the placenta.

Placental-fetal factor.

Placental macroscopy.

**Anomaly of development of placenta, umbilical
cord and membranes. Placental tumors.**

**The proliferation of cytotrophoblasts,
syncytiotrophoblasts, fibrous fibroblasts.**

**Structural features of placental dysfunction [primary,
secondary, acute, chronic (absolute, relative).**

Placenta tissue radiometry.



Chernobyl accident - impact

Morphological changes of proliferative nature:

- increased expression of carcinoembryonic and proliferative-cell antigens, pro-apoptotic factors**
- apoptotic index three times higher**
- proliferation in syncytiotrophoblast, stromal elements, villus of endothelium**

Chernobyl accident - impact

Children population:

increase of malignancies – tumors of bones, kidneys, CNS, thyroid glands, leukemias, lymphatic and reticulosarcomas

Reproductive health:

Chronic placental dysfunction – disorders of fetal and newborn development

Placenta research, collaboration



SHIMANE UNIVERSITY

4th Shimane International Symposium

“Lessons from 30 years after Chernobyl accident”

January 26, 2017, Japan

“Morphology and immunohistochemistry of placenta after 30 years of the Chernobyl accident”

Current and prospective research

Study of placental predictors of potential risk factors for health problems in children during their growth and development.

"PLACENTA-DERIVED STEM CELLS":

- **effects of chronic hypoxia and internal irradiation on the structure of stem cells**
- **pursue of the architectonic of stem cells in the placental barrier**
- **regenerative properties of stem cells in placenta, etc.**

Resume

Institute collaborates with National and International organizations, and participates in different projects and State programs dedicated to maternity and children health care.

Collaboration with EPTRI project will contribute to development of pediatric science and improvement of life quality of sick children who need special care

Thank you for your time

