

## REPORT

I attended the theoretical course of “Classical and molecular cytogenetics” held in Nimes, France from 17-26 February 2008. The course covered different approaches of cytogenetics: from basic foundations to advanced molecular cytogenetics, and consisted exclusively of lecture sessions.

Prof. J.P.Bureau, the conductor of this course, gave the lecture dedicated to the techniques of cell culture, different chromosome staining methods (Q-, G-, C-, R-banding and high resolution banding). Significance of numerical and structural abnormalities of autosomes, sex chromosomes as well of mosaicism for genetic counseling was performed by prof. K.Madan. The last cytogenetic nomenclature system of human cytogenetics (ISCN 2005) with different examples was presented.

Interesting viewpoint was suggested by prof. J.P.Dupont concerning genome architecture and structure of chromatin from interphase up to metaphase. It was supposed that each chromosome has a specific territory and the size of the territory relates to the size of the chromosome. Position of the active gene within territories was considered depending on their relation to the periphery.

Wide range of problems concerning prenatal chromosome diagnosis, indications, methods and interpretation as well as quality assessment strategy and questions of genetic counseling were discussed during lectures of prof. R.Miller and prof.J.P.Dupont.

Very exciting lecture was given by prof. U.Claussen. He performed the basics in human chromosome preparation as well as relatively new technology - chromosome microdissection method that allow to create FISH probe for the certain chromosome or for the part of it. This is the most effective approach in the marker chromosome origin study. He expressed the first idea, that at the DNA-level the chromosomes in interphase nuclei are banded and the banding pattern is identical to that of metaphase chromosomes. The second - that high resolution chromosomes are preparation induced artifacts and do not exist in living cells. The third – light G-bands are the stretchable unit. The conclusion is the nomenclature of ISCN needs to be reassessed.

The lecture on array CGH given by prof.J.Vermeesh was also very interesting for me. This approach improves the cytogenetic resolution up to 1 Mb and allows to discover cryptic chromosome imbalances which does not available by conventional cytogenetics.

Prof. M.Rocchi presented the data reflecting the plasticity of the human genome. His laboratory in Bari created the huge library of the DNA recourses for the FISH probe and actively shares with the cytogeneticists all over the world. I was very pleased to meet with prof. A.Schinzel with who we have a close collaboration in unbalanced karyotype study with. He gave a lecture on UPD and on recognizable phenotype of microdeletions and microduplications syndromes.

Considerable time was devoted to the oncological cytogenetics, including chromosomal markers in solid tumors, hematological malignancies, and lymphomas.

During the course there was a great opportunity to contact with the top specialists in different areas of cytogenetics and also the chance to meet with other cytogeneticists from all over the world.

As a very important achievement of this course I consider the collaboration with some of them in the future.