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## Comparative system genetics view of endometriosis and uterine leiomyoma

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Endometriosis (EM) and Leiomyoma (UL) are two most frequent benign tumors of monoclonal origin affecting about 30% of all women in their reproductive age. Though known for centuries many aspects of pathogenesis and pathophysiology of EM and UL remain unknown so far. Modern molecular technologies have made tremendous impact in our understanding of both disorders. The report gives comparative analysis of molecular mechanisms of EM and UL including recent data on their origin, progression and peculiarities of manifestation. Similarities and differences of molecular mechanisms underlying their early stages are enlighten from position of systems genetics with particular emphasis on genetic specificity, gene interactions and epigenetic mechanisms regulating normal and pathologic development. Comparison of epigenetic landscapes of EM and UL progression underlying peculiarities and unique personal clinical manifestations are outlined. The origin of both tumors as outgrowths of the relevant stem cells with mesenchymal commitment lineage migrating from endometrium/myometrium junctional zone of the uterus is hypothesized. Differences in mechanisms of stem cell origin and tumor progression resulting from epigenetic landscape peculiarities as basic reason of many clinical forms as well as unique individual manifestation of EM and UL are suggested Proofs advocating for syntropy of molecular mechanisms underlying both disorders are presented. Perspectives of the further studies of EM and UL from the platform of systems genetic with assistance of new molecular technologies and bioinformatic analysis are briefly discussed.

### Biography

Vladislav S Baranov was graduated from the State Medical Institute in Lvov, Ukraine and received his PhD degree in Saint-Petersburg, Russia in 1976. He is the Chief of laboratory for prenatal diagnosis of inherited and inborn diseases at the Ott's Institute of Obstetrics, Gynecology & Reproduction. He is interested in genetic and cytogenetic aspects of early development, gene testing of inherited predisposition to common disorders, personalized predictive medicine and gene therapy. He is also a Professor, Corresponding Member of Russian Academy of Sciences, Honorary Scientist, Chief City Expert in Medical Genetics, author and co-author of 29 books and over 400 scientific papers.

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