1. Record Nr. UNINA9910372783603321

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Titolo	Cell-Free Nucleic Acids
Pubbl/distr/stampa	MDPI - Multidisciplinary Digital Publishing Institute, 2020
ISBN	3-03928-075-9
Descrizione fisica	1 online resource (248 p.)
Soggetti	Medicine
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia

Sommario/riassunto

The deficits of mammography and the potential of noninvasive diagnostic testing using circulating miRNA profiles are presented in our first review article. Exosomes are important in the transfer of genetic information. The current knowledge on exosome-associated DNAs and on vesicle-associated DNAs and their role in pregnancy-related complications is presented in the next article. The major obstacle is the lack of a standardized technique for the isolation and measurement of exosomes. One review has summarized the latest results on cell-free nucleic acids in inflammatory bowel disease (IBD). Despite the extensive research, the etiology and exact pathogenesis are still unclear, although similarity to the cell-free ribonucleic acids (cfRNAs) observed in other autoimmune diseases seems to be relevant in IBD. Liquid biopsy is a useful tool for the differentiation of leiomyomas and sarcomas in the corpus uteri. One manuscript has collected the most important knowledge of mesenchymal uterine tumors and shows the benefits of noninvasive sampling. Microchimerism has also recently become a hot topic. It is discussed in the context of various forms of transplantation and transplantation-related advanced therapies, the available cell-free nucleic acid (cfNA) markers, and the detection platforms that have been introduced. Ovarian cancer is one of the leading serious malignancies among women, with a high incidence of mortality; the introduction of new noninvasive diagnostic markers could help in its early detection and treatment monitoring. Epigenetic

regulation is very important during the development of diseases and drug resistance. Methylation changes are important signs during ovarian cancer development, and it seems that the CDH1 gene is a potential candidate for being a noninvasive biomarker in the diagnosis of ovarian cancer. Preeclampsia is a mysterious disease-despite intensive research, the exact details of its development are unknown. It seems that cell-free nucleic acids could serve as biomarkers for the early detection of this disease. Three research papers deal with the prenatal application of cfDNA. Copy number variants (CNVs) are important subjects for the study of human genome variations, as CNVs can contribute to population diversity and human genetic diseases. These are useful in NIPT as a source of population specific data. The reliability of NIPT depends on the accurate estimation of fetal fraction. Improvement in the success rate of in vitro fertilization (IVF) and embryo transfer (ET) is an important goal. The measurement of embryo-specific small noncoding RNAs in culture media could improve the efficiency of ET.