CURRICULUM VITAE

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EDUCATION

2010	Bachelor degree in Biochemistry at the Faculty of Natural Scienes, Palacky University, Olomouc Czech Republic. Thesis: "Polysomy of chromosome 17 in breast cancer patients and its impact for tailored therapy".
2012	Studies for Master degree in Biochemistry at the Faculty of Natural Scienes, Palacky University, Olomouc Czech Republic.
2011	Working stage at the University of Birmingham, School of Cancer Sciences, Birmingham, United Kingdom

SKILLS

Languages:	English - intermediate, French – poor
Computer:	Literate in standard applications such as Word, Excel, PowerPoint, net browsers, software MetaSystem Iris
Lab methods:	fluorescence in situ hybridization, chromogenic in situ hybridization, HPV diagnostics basic of microbiologic techniques, DNA and RNA isolation, PCR, southern blot

RESEARCH EXPERIENCE

A. "Polysomy of chromosome 17 in breast cancer patients and its impact for tailored therapy" (Bachelor degree thesis)

Chromosome 17 is very interesting for study of breast cancer development. Many oncogenes (e.g. HER-2/neu and gene for topoisomerase IIα – TOP2A) and tumor-suppressor genes (e.g. p53, BRCA1) are located on chromosome 17. Polysomy of chromosome 17 is frequently found in breast cancer patients. The aim of Bechelor thesis was to compare the incidence of amplification of C-MYC (located on chromosome 8), CCND1 (located on chromosome 11) genes and polysomy of chromosome 8 and chromosome 11 in conjunction with chromosome 17 polysomy. We used fluorescent *in situ* hybridization for detection copy number of genes and chromosomes. When we compared two groups of patients: patients with polysomy of chromosome 17 (CH17 ≥ 2.5) and patients with physiological CH17 copy number (CH17 < 2.5) we confirmed differences in genes and chromosomes numbers but not in their ratios (i.e. not with amplification). We confirmed that polysomic patients have more frequently increased numbers of C-MYC, CCND1 genes due to CH8 and CH11 polysomy but no correlation with gene amplification was found (ratio gene : chromosome copy number ≥ 2.2). Our data indicate that chromosome 17 polysomy is due to genome polyploidy, which at least involves chromosomes 8 and 11.

B. " Investigation of the pattern of expression of epigenetic modulators in normal and neoplastic

tissue removed from female lower genital tract ”

Cervical cancer is the second most common cancer in woman worldwide. About 40 different types of human papilloma (HPV) are able to infect the genital tract and cause the cancer. HPV 16 and HPV 18 are the most common high risk HPV. HPV genome contains 9 genes including E6 and E7 oncogenes that are guided by E2 HPV protein but after fragmentation or lose of E2 gene E6 and E7 cause cell cycle deregulation by destroying pRB and p53. We want to correlate HPV positivity (HPV16 and 18) of tissue samples and E2 fragmentation or lose with level of expression of epigenetic modulators like DNA methyltransferases (DNMTs) and active subunit of histone methyltransferases (HMTs) (EZH2). Epigenetic changes made by DNMTs and HMTs lead to the assembly of higher-order chromatin structures and genes silencing. Epigenetic regulation plays fundamental role not only in gene expression but also in DNA replication, recombination and repair, and is responsible for stem cell development and cellular differentiation. Epigenetic modifications contribute to the pathogenesis of cancer and degenerative diseases and are associated with the aging.
We detected level of expression of DNMT1, DNMAT3A, DNMT3B and EZH2 by immunohistochemistry in 25 neoplastic tissue samples. We want to compare expression of these proteins in areas of CIN3, CGIN and invasive cancer and correlate it with clinical data.

C. “Detection of molecular cytogenetic abnormalities and their significance in predicting prognosis and treatment response in cancer” (ongoing project)

The thesis is focused on influence of HPV infection on fertility and cancer development. HPV DNA is detected by PCR based diagnostics and in situ hybridisation. The main goal is to determine an influence of HPV on fertility and cancer development.

REFERENCES

1. MUDr. Marian Hajduch, PhD.;

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2. Mgr. Vladimira Koudelakova

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ABSTRACTS

ONDRYASOVA H., ZBORILOVA B., KOUDELAKOVA V., OBORNA I., BREZINOVA J., VRBKOVA J., HAJDUCH M. Prevalence of HPV infection in oocyte donors and women treated for infertility: a prospective study, Abstrakt book, 31st Annual Meeting of the European Society of Human Reproduction and Embryology Lisabon, 14.-17.6.2015, European Society of human Reproduction and Embryology 2015-2017.

PUBLICATIONS

ONDRYÁŠOVÁ, H., V. KOUDELÁKOVÁ a M. HAJDÚCH. Cervical cancer--possibilities of detection of human papillomavirus. *Česká gynekol.* 2013, 78(3), 289-294. ISSN 1210-7832