Białystok, 10 March 2023

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Cover Letter

I received a master of science in Medical Analytics and have a Pharmaceutical assistant. During master studies I was an active participant of the Student's Scientific Society at the Department of Pharmaceutical Biochemistry, Medical University of Bialystok, Poland were I have the opportunity to perform cell sub-fraction isolation, setting up cell cultures, Western blot, and proteins electrophoresis. At that time I was co-author of four abstracts at the 5th International Scientific Conference of Medical Students and Young Doctors. I also was participant, to the end of my master studies, at the Student's Scientific Society at the Department of Immunology where I had an opportunity to familiarize with Western bolt, Northern blot, RT-qPCR, and other techniques routinely performed in immunology. At that time I was the author of abstract at the 7th International Medical Congress for Young Scientists. This work was regarding *TNFSF13* mRNA expression in neutrophils in patients with premalignant lesions which was my master thesis. I had also the opportunity to perform flow cytometry in the Department of Hematological Diagnostics under the supervisor of Małgorzata Rusak, Ph.D. I also were co-organizer of two editions of the Bialystok International Medical Congress for Young Scientists as a member of the board of the Students' Scientific Society.

After receiving a master diploma I had the opportunity to work in a project utilizing microarray technique (we use Agilent's gene expression and miRNA oligonucleotide microarrays) and RT-qPCR after incubation of immortal cell line with cytotoxic substances (e.g. proteasome inhibitor, terpene). During which I designed experiments, manage the budget, performing wet-lab procedures, and in silico analyses in an open-source environment R, RStudio (linear regression with Bayesian, multivariate analysis, pathways analysis). This time was challenging without previous experience with programming tools but it was fascinating time revealing nuances how limma package work and how to change some bugs in R

code to perform visualization. Books and on-line courses about R programming were very helpful for this. At that time I performed with the co-operation of Prof. Rafał Płoski DNA sequencing (1000 genes) of cancer and healthy region of the patient kidney. At that time I had health issues which despite that this huge performed work were and validation process by RTqPCR were on and fourth year was ending without publication and no allow for expanding PhD studies for up to two years, as PhD programe foresaw I resigned. Despite that I still working with glmm and Bayesian to better understand biostatistics especially on the clinical level, e.g. R is top programming language in pharma industry and some CRO perform all steps only using R.

I possess documented RT-qPCR experience, genomic and transcriptomic data analysis, knowledge of proteomics, and metabolomics. Also, I am in halfway of specialization for data science at Johns Hopkins University. My scientific interests focusing on pathways governing circular and linear coding and non-coding RNA's metabolism, epigenomics, epitranscriptomics, RNA-protein interactions with nuclear and cytoplasmic posttranscriptional and posttranslational modifications and degradation in proteasomes. From the biostatistical point of view, I am focusing on an optimal statistical model selection, machine learning, neural networks, multivariate analysis (Dirichlet process, Ricci flow), graph theory and topology. My interests are also focused on HPC, I performed a small computer cluster utilizing two nodes. My experiences and interests are in genomics and transcriptomics modifications governing cancer and immunology utilizing biostatistics. I have constantly willing to learn new techniques, and mathematical. I am also interested in issues such as lab-on-chip and CXFEL. I am fascinated by the use of Ricci flow as a multidimensional method and a graphs theory to identify therapeutic targets and biomarkers, including thermodynamics and chaos theory. I have also some experience with html5, css, yaml, js in webpage building with tooltips windows.

Yours sincerely,

Wiesław Abramowicz