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To whom it may concern

Jena, 26 August 2014

Dear Madam or Sir,

I know Pauli Tikka since September 2013 in my role as his supervisor for performing his Master's Thesis in Technology. He was in my lab at the Hans-Knöll-Institute in Jena, Germany, for an internship of 6 months until March this year.

During his internship he was introduced into analyzing gene expression data and, in addition, mixed integer linear programming (MILP) for analyzing the association of gene expression of breast cancer with triple negative receptor status (TNBC) to their microRNA expression. He used The Cancer Genome Atlas gene expression data from TNBC and control samples. He learned how to normalize the data, performed clustering analyses, enrichment tests for identifying aberrant signaling and metabolic pathways of the tumors and modelled expression patterns using MILP. Besides this, he got to know how to perform machine learning strategies for training the mathematical models by applying cross-validation with different sample subsets. His results were comparable with literature and earlier research.

Pauli Tikka is well skilled and trained. At all times I have found him to be reliable, highly motivated, and very well organized. His efficient, systematic, and independent way of working on our project was very good. Beyond his day to day work, he cooperated and supported well the work of other students and lab workers. He has been a pleasure to work with, bringing his attention to detail of the project. His communication skills are very good, and he has innovative ideas.

I can very well recommend Pauli Tikka for a PhD program.

Sincerely,



Rainer König
(Group leader and supervisor of the project)