



10th February 2017

Ph.D. supervisor's statement for Aleksandar I. Mihajlović

Aleksandar I. Mihajlović is the second Ph.D. student to defend his thesis after conducting research in my laboratory, following hot on the heels of Vasanth Thamodaran's defence in December 2016. My overall feelings about Aleks and his contribution to our research programme can best be summed up when I often consider to myself whether I have just had the best Ph.D. student that I am ever likely to have in my whole career. Indeed, having Aleks in the lab these last years has been like having the equivalent of a very talented post-doc researcher. When he finally leaves, he will be very sorely missed.

Aleks first applied to join my group back in 2011, and started his studies in the September of 2012. I have to confess that I nearly did not take him (what a mistake that would have been!) given that he had already started a Ph.D. in his native Serbia, and this rang some alarm bells for me. However, as he later explained, he had not been so satisfied with the level of science in Serbia and he wanted to break out; moreover he had independently identified the field of mammalian preimplantation embryo development as the place he wanted to work (placing Ph.D. applications accordingly), again explaining his desire to leave. I would say this speaks to Aleks' very deliberate and careful nature, in that he made sure he had his fall back position in Serbia assured but then pressed on to try and achieve something extra. I see such parallel approaches in his work, as he is extremely careful to make sure all possibilities have been identified, considered and controlled for, and that his research has a solid foundation. It is at this point that we must acknowledge Aleks' now wife Zorana, because if she had not given such a great interview with Dr. Alena Krejčí (my wife, who also runs a research group in our faculty) and been accepted by her onto a Ph.D. programme, I probably would not have given Aleks the second chance to interview. So, thanks Zoran! Once I did finally interview Aleks, it was immediately very clear to me that he was extremely well educated and knowledgeable about the field, as well as inherently clever and inquisitive; all excellent attributes for any budding scientist. These attributes, I am glad to say have not deserted him and have in fact been augmented during his Ph.D studies. Added to these qualities, Aleks is a very efficient, talented and tidy worker; he seems capable of turning his hands to any molecular or embryological technique with the minimum of fuss; note that I do not say with 'minimum ease', as a lot of what we do in the lab is extremely tricky and technically demanding. This is best exemplified when I suggested to Aleks that, in relation to the work presented in his first paper as principle author, we should make some preimplantation stage embryo chimeras consisting of cell clones that had previously been micro-injected with RNAi constructs and fluorescent markers. Expecting a somewhat lengthy lead-in period, while he tried to get to grips with these demanding embryo micro-manipulations, he duly presented the preliminary data within 15 days! During this time he had comprehensively researched the relevant literature (something he always does in general), designed and optimised the technique for use in our lab and carefully executed his plan. This was quite remarkable achievement, although in other ways quite typical of the way he works. Aleks also has a good track record of passing on the wisdoms associated with his practical skills to his fellow co-workers, something that as a Ph.D. student supervisor and research group leader, I have particularly appreciated. Although, I think it is fair to say that he prefers to work independently in terms of his own individual project aims. Moreover, he has also set in place a number of laboratory norms and systems relating to the daily routine of running of the laboratory; something that I again appreciate and I think his colleagues do too (albeit after some rough, shall we say 'training periods'). In fact the extent to which Aleks likes to have things organised, possibly borders on obsessive behaviour. His level of professional organisation would probably put 99.9% of all scientists to shame; his lab notes are so beautifully presented and have a clarity about them, that they rather belong

framed in a gallery somewhere, than in the lab! Seriously though, Aleks has no trouble recalling any experimental details or results, from however long ago. This has made the writing of the two manuscripts we have produced together much more of a pleasant and easy experience than otherwise may have been the case! This brings us to the subject of writing, and if Aleks were to state what is his Achilles heel, I suspect he would identify scientific writing. I know that this is something that does not come easy to him, he might say he finds it torturous! However, I feel compelled to state that I do not think he is as bad at it as he thinks he is. For example, he wrote the vast bulk of his thesis within 4-6 weeks (and the introduction reads like a text book chapter or review of preimplantation mouse embryo development – although its not of course!) and then agonised over the latter final portions, trying to perfect them. My advise to him in this regard is to trust himself a bit more to enable him to get over the perfectionist hurdle; writing is difficult and it is something that very few of us will ever really perfect and it is also something that we are all constantly developing. In time and with practice, I'm sure Aleks doubts about his writing ability will subside. If I were to identify one negative aspect of his professional character, it would be that he sometimes gets too deep into his work. As we all know, the frustrating days in the lab usually outnumber the euphoric ones; during these last years I have never had any doubts when Aleks was frustrated! It's important to care about your work, something Aleks clearly does, but it shouldn't have such a negative and physiologically manifest effect on ones wellbeing. I think that Aleks could do a better line in 'chilling out' a bit more, but this is only a minor criticism

Briefly regarding his work, Aleks has produced two first authorship publications during his time with us and contributed to other projects that are in the process of being written up. It does not serve too much point to provide a detailed summary of these papers here, as Aleks will I'm sure, do a creditable job of doing this in his thesis defence seminar. However, I would just state that the first work related to the inter-connected nature of the two cell-fate decisions in preimplantation mouse embryo development has been cited in recent comprehensive reviews and stems from a lot of independent thought and experimental design on Aleks' part. In conjunction with this first paper, the second paper in particular (relating to regulation of polarity and hippo-signalling), has provided a rich vein of research material, that Aleks is currently mining and we hope will yield at least a further publication this year, as well as the foundation of future grant applications.

In concluding, I cannot recommend highly enough Aleksandar I. Mihajlović's thesis for a successful defence. During his stay in my research group, he has proved himself a highly valued, intelligent, diligent, motivated resilient and extremely proficient scientific researcher. Moreover, he has shown that he is more than capable of independent research, encompassing all aspects of theory, design, execution and interpretation; he is in my view at a level in his scientific training that is in advance of his current status as a defending Ph.D. student. These are achievements made all the more remarkable in that his time with us has almost entirely overlapped with the birth and growing up of his and Zorana's first child, Tomislav. Furthermore, he is a very affable and likeable man. I have come to consider him a close friend and wish him and his family all the very best in their futures. He will be missed by colleagues and friends alike when he leaves the lab, but until that point we are glad to have him stay and work with us some more. I therefore commend his thesis to the commission.



Alexander W. Bruce Ph.D.

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