# Yale University

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RE: Albert Ayoub, Ph.D. application for faculty position

Dear Members of the Search Committee,

I am writing this letter in support of Dr. Albert Ayoub's application for the faculty position at your Department. Albert is presently an Associate Research Scientist in my laboratory at the Department of Neurobiology at Yale University School of Medicine. I have had ample opportunity to observe him at the bench, watch what a creative thinker he is at our laboratory meetings and seminars, and had many personal discussions about various technical and conceptual scientific problems. As evident from his CV and elaborated below, he is by any standard an excellently trained, talented and productive neuroscientist and he is at the right stage of his career to establish his own research program and independent laboratory.

Albert Ayoub completed his Ph.D. in Jia Luo's lab at West Virginia University where he studied development of the cerebellum. He approached me because of his interest in development of the cerebral cortex and his desire to learn more about the molecular and cellular mechanism of cortical development. He was highly recommended to me by all whom I spoke with and all praised him as a brilliant, innovative, and a fast-learning scientist.

From the start, Albert impressed me as a highly motivated, curious and original young man. Indeed, during his stay in my laboratory, Albert has shown exceptional progress. He has mastered several totally new methods and novel approaches that were not in his repertoire during his graduate training. For example, he learned live imaging using the multiphoton microscopy to study cell behavior in tissue explants following loss and gain of function by retroviral gene delivery and has implemented these new and innovative techniques. In addition, he began to work on the very new comparative analysis of gene expression in the early neural stem cells in embryonic mouse, monkey and human cerebral cortex.

Albert has also shown a deep interest in the development of the brain in general--formation and evolutionary advances of the cerebral cortex in particular. Instead of focusing on one model system (such as the mouse), he started to compare cellular events in the mouse, monkey and human embryos. To accomplish this he learned the complex undertaking of doing Cesarean sections in large primates. He also learned how to microdissect cells from tissue and how to analyze gene expression using mRNA sequencing. During the same time he showed mastery of the literature on neocortical development and a deeper understanding of current concepts of brain development and evolution, which enticed me to seek his help in evaluating papers that I review for other journals and/or serve as a post-hoc referee for the journal *Cerebral Cortex*. He has published several important papers as well as ongoing projects that are not yet reflected in his CV. Albert was also a recipient of the Patterson Trust Fellowship in Brain Circuitry from Medical Foundation.

Albert Ayoub has become a valuable member, not only of my laboratory, but also of several other groups in the Department of Neurobiology and the Yale neuroscience community at large. For example, he is applying whole transcriptome analysis in collaboration with James Noonan in the

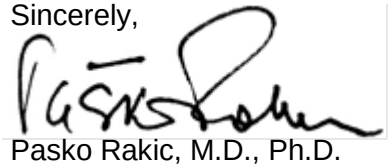
Genetics Department for the study of neuronal and glial cells *in vivo*. As such, he is an essential investigator on the NIH grant on Origin "Species-specific Cortical Distinctions".

As evident from his CV, Albert has been working in my laboratory as a Postdoctoral Associate since August 2004 and we have discussed prospects for his career on many occasions. This type of research is not only unique, but also extremely time consuming and demanding technically and conceptually. This subject is of great biomedical significance and on the high priority at NIH. I am mentioning here the complexity, duration and significance of this research to emphasize that the reason that Albert did not seek a job earlier was not because he was not competitive, but because he chose difficult problems to work on and was willing to stay with them until completion. This is a sign of a mature and serious scientist.

Albert's present research is focused on mechanisms regulating neural progenitors and affecting differentiation of postmitotic neurons. His innovative abilities are evident, and stated in part on his Statement of Research Interests. Although his goals are ambitious, they are nevertheless realistic, and I do not have any doubt that he can accomplish them.

In summary, Dr. Albert Ayoub has distinguished himself in the lab as well as our department as an uncommonly talented, original and highly industrious postdoctoral fellow. He has a capacity to exploit--in an imaginative way--some of the most advanced methods, and was able to formulate a number of important conceptual questions concerning basic developmental mechanisms underlying cell lineages and cortical development. He is fully devoted to a research and academic career and seems determined to make a significant contribution. Albert is self-motivated to perform creative work, and I firmly believe that he has the capacity to become a productive and original investigator. In my judgment, he is on par with the best postdoctoral candidates who have worked in my lab, many of whom have developed highly successful research careers. I recommend him with the highest possible enthusiasm and without any reservation.

Sincerely,



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