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Dear Colleagues,

This letter is in very strong support of **Dr. Peter Houston's** application for a position in your department as an Assistant Professor. Dr. Houston is currently a postdoctoral fellow in the adjacent laboratory of Dr. James Broach. Because of our labs close association and Princeton Area Yeast meetings I have had several opportunities to hear Dr. Houston describe his research. Furthermore, Dr. Houston is one of the major users of a Deltavision Deconvolution microscope that I maintain. Dr. Houston joined Dr. Broach's lab with a strong background in the biochemical study of DNA repair proteins in yeast. At Princeton, he has transitioned to become a leader in live cell microscopy for the analysis of recombination and repair *in vivo*.

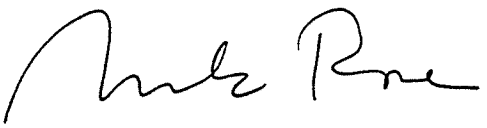
Dr. Houston's overall project concerns the mechanism by which yeast cells distinguish between the two equivalent silent loci during double strand break mediated mating type switching. Using microscopic analysis of cells in which the loci are marked with different fluorescent proteins, Dr. Houston first showed that preassembled chromosome architecture does not underlie the mechanism of directional bias. This work was published in *EMBO J*, with Pete as second author. This work was continued looking at the effects of the recombination enhancer (RE), identified by Haber's and Broach's labs, on the competing processes of mating type switching. This work turned out to be more complex than anticipated with the RE having different effects on intrachromosomal versus interchromosomal recombination events. Although it did not unambiguously identify the mechanism of bias, it does constrain future models. This work was published in *Genetics*, with Pete as first author.

Very exciting recent work has shown that the dynamics of the interaction between the mating type loci may explain directionality in mating type switching. Pete developed a flow cell apparatus with which he can turn on expression of the HO endonuclease and watch pairing events that are likely to correspond to recombination. There have been a number of surprises in this story and this seems to be a very productive area of study. First, many of the interactions are transient, however in strains where switching will occur the correct pairing events become more long lived and frequent. The exciting interpretation is that Pete is witnessing reversible recombination intermediates whose persistence is what is actually regulated by the preference machinery. This work has considerable promise and Pete is now examining the effects of different recombination

mutations to identify the relevant regulated step. This work will likely turn out to be very informative about mitotic repair pathways, long-range chromosome architecture and directed recombination events such as occur during the development of the immune system. Its virtue is that it is a single specific event that can be regulated at will.

Dr. Houston is a pleasant and easy–going young scientist. He is fearless about asking questions at our various Princeton area Yeast meetings and always has good suggestions for alternative approaches. He is very helpful to members of his own lab and my lab. One of his great strengths is his willingness and ease in setting up new experimental approaches and devices. He has shown real leadership in microscopy in the Broach lab. His talks are clear and well received. They usually provoke much discussion and Pete is quite willing to listen to helpful suggestions. I expect that Pete will be a very good colleague and make strong contributions in the future. He has my very strong recommendation.

Sincerely yours,



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