GENETICS

IS BUCCAL DNA REALLY BUCCAL DNA?

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This is an update of the recent TCRA post herewhere I argued that TCR studies shouldn't be done with genomic DNA from peripheral blood cells. Instead, I was arguing for buccal DNA as epithelial cells will not have undergone somatic recombination. Only last week, however, I came across an earlier letter about DNA-based assessment of chimerism after allogeneic blood stem cell transplantation (BSCT). The authors describe the problem

> …Endler et al found that mouthwashes performed after BSCT frequently contain a high proportion of donor cells and sometimes the DNA derived from this material completely reflects the donor STR profile. We have employed a different approach, aiming to directly use epithelial cells derived from buccal swabs to obtain the pre-transplantation STR genotype of the recipient. This technique is standard in forensic medicine. However, after allogeneic transplantation the situation is complicated, since granulocytes and lymphocytes, which are trafficking through the normal human mucosa and can be found in the saliva, are usually derived from the donor… DNA samples derived from buccal swabs still contained donor DNA. However, the amount was much lower than in the mouthwash samples (median 21% in the buccal swab samples compared to 74% in the mouthwash samples)

So even buccal swabs contain to a significant fraction of recombined TCR. Biopsy samples are therefore the only safe method, yea, yea.