

**AAO Foundation Award Final Report
(a/o 2/12/08)**

Principal Investigator	Louis A. Norton DMD, MA
Co-Investigator	
Secondary Investigators	
Award Type	
Project Title	Title: TNF in Root Resorption in Primary Molars University of Connecticut School of Dental Medicine
Project Year	1996 award
Institution	University of Connecticut
Summary/Abstract (250 word maximum)	<p>Project Summary: Tumor Necrosis Factor alpha (TNF) is a proximal cytokine in the cascade of inflammatory response cascade. This study was designed to test the hypothesis that, if TNF inhibitors and/or blockers are regulated by the dental follicle or PDL, then agenesis of the dental follicle (MPS) and ankylosis, should result in observable changes in TNF measured in the gingival crevice. To test this hypothesis, the TNF in the gingival crevice of deciduous molars with a permanent successor was measured and compared to those values obtained from the crevice of an ankylosed molar, and a normal deciduous molar with MPS. One hundred and seven sites were tested from a population of 41 patients. The methodology employed to quantify the cytokine's presence was the use of antibodies to TNF coated on paramagnetic beads, placed in the gingival crevice for a standard time, retrieved by a magnetic harvester, and subjecting the recovered material to an ELISA assay analysis.</p> <p>Results: TNF was sampled from the gingival crevice of normal human primary molars, molars missing a successor and ankylosed molars. TNF was elevated in the gingival crevice of ankylosed molars and where the</p>

	<p>permanent tooth bud was missing.</p> <p>(PREDICTA Tumor Necrosis Factor Kit, Genzyme Diagnostics, Cambridge, MA, and USA).</p>
Were the original, specific aims of the proposal realized?	Yes
Were the results published? If not, are there plans to publish? If not, why not?	Yes
Have the results of this proposal been presented? If so, when and where? If not, are there plans to do so? If not, why not?	<p>Publication in a refereed journal:</p> <p>Urles, S.D., Chrzan, J.M., Norton, L.A., and Rossomando, E.R., The Role of TNF in Bone Resorption during Eruption of Deciduous Molars in Humans, <u>AJODO</u>, 118, 196-202, 2000</p> <p>Published abstracts and /or meeting presentations:</p> <p>Norton, Louis A., Rossomando E. F. and Urles, S. D., TNF in Root Resorption in Primary Molars, AAOF Web Site Abstr. 1996 award.</p> <p>Norton, Louis A., Rossomando E. F., The use of Immunobead Technology in the Diagnosis and Tracking of Root Reorption, AAOF Web Site Abstr.1997 award.</p> <p>Chiou, J.L., Noxon, S., Lenk, J., Rossomando, E.F. and Norton, L.A.: TNF-alpha in gingival sulcus fluid before and after application of force to deciduous molars. University of Connecticut Health Center Student Research Symposium, Farmington, Ct, February, 1997.</p> <p>Chrzan, J.M., Ureles, S.D., Hesla, M.A., Norton, L.A., and Rossomando, E.F., Correlations between TNF-a levels and primary tooth eruption. University of Connecticut Health Center Student Research Symposium, Farmington, Ct, February, 1998.</p> <p>Urles, S.D., Chrzan, J.M., Helsa, M.A., Norton, L.A., and Rossoman</p> <p>Comparing Cytokine TNF levels in normal and Ankylosed</p>

	<p>Deciduous Teeth. American Academy of Pediatric Dentistry meeting, research program, San Diego, CA, May 1998.</p> <p>Urles, S.D., Chrzan, J.M., Helsa, M.A., Norton, L.A., and Rossoman Crevicular TNF and primary Tooth Eruption in Humans. IADR, Nice, France, May, 1998.</p>
<p>Special Interest to the AAOF</p>	<p>is AAO Foundation award lead to two not too obvious results .</p> <p>Steven Noxon worked on this project as an undergraduate dental student at the University of Connecticut. He went on to study orthodontics at the University of Washington. His research effort at for his master's degree at Washington earned the prestigious Hatton Award given annually by the IADR. Dr. Noxon teaches orthodontics at the Harvard School of Dental Medicine. (I believe that this grant both helped develop Dr. Noxon's interest in dental science and his "giving back" by taking time to be involved in teaching.)</p> <p>Dr. Stephen Urles is a practicing pediatric dentist in Connecticut. His image of the orthodontic community was greatly enhanced by being able to participate as a member of our reaserch team that was team funded by this Foundation grant. He was instrumental in leading an effort to have the pediatric dental society to set up similar research awards for their members.</p>