

This Week's Citation Classic®

Tabak L A, Levine M J, Mandel I D & Ellison S A. Role of salivary mucins in the protection of the oral cavity. *J. Oral Pathol.* 11:1-17, 1982.
[Depts. Oral Biology and Endodontics, Sch. Dentistry, State Univ. New York, Buffalo, and Sch. Dental and Oral Surgery, Columbia Univ., New York, NY]

This review of salivary mucin function summarized evidence that indicates that these glycoproteins serve to lubricate and hydrate the oral tissues, as well as modulate the levels of specific oral microorganisms within the mouth. Mechanisms that could regulate mucin biosynthesis (and hence function) were proposed. [The *SCJ*® indicates that this paper has been cited in over 105 publications, making it the most-cited paper from this journal.]

ogy in Buffalo was the first in a dental school to be devoted completely to research activities. Since Michael was Ellison's first graduate student, my own training was kept very much "in the family."

This review was first written as the introductory chapter of my PhD thesis. Encouraged by Michael and the other members of my advisory committee to publish the material as a review article, I sent copies to Mandel and Ellison for their comments and advice. After incorporating their suggestions, we submitted the manuscript to the *Journal of Oral Pathology*, where it was published after a protracted trans-Atlantic debate with the typesetter over the references cited section.

In this paper we outlined evidence that indicates that mucin-glycoproteins play an important protective role in the mouth. In particular, we focused on the role played by mucins in hydrating and lubricating the hard and soft tissues of the mouth, as well as the interactions between mucins and oral microorganisms that lead to the selective absorption and proliferation of specific members of the oral flora. We drew on evidence from many different fields, and, in part, this may explain why this paper continues to receive attention from workers outside of the dental field.² We also suggested several mechanisms that could control the biosynthesis of mucins. Surprisingly, we still know relatively little about the elements that regulate the synthesis of mucins or O-glycosylation in general,^{3,4} and, thus, this review remains timely. We have continued our studies to understand the regulation of mucin biosynthesis;⁵ my efforts in this regard were recognized by the International Association of Dental Research, which awarded me its Young Investigators Award in 1987. The far greater reward, or course, has been my continued intellectual collaboration with my coauthors/mentors and the interactions that I have enjoyed with my own students.

Salivary Mucin-Glycoprotein Function

Lawrence A. Tabak
Departments of Dental Research and
Biochemistry
School of Medicine and Dentistry
University of Rochester
Rochester, NY 14642

May 3, 1990

My interest in the structure and function of salivary molecules began while I was a dental student at the School of Dental and Oral Surgery, Columbia University. During that time, I had the privilege of working with Dan Fine and Irwin D. Mandel. Under Mandel's direction, I published my first papers on salivary composition.^{1,2} After graduation, and largely due to the encouragement of Dan and Irwin, I joined the Department of Oral Biology at the State University of New York at Buffalo, where I had the good fortune of working under Michael J. Levine for a PhD. Founded in 1960 by Solon A. Ellison (who came from Columbia where he had been a longtime collaborator of Mandel), the Department of Oral Biol-

1. Tabak L A, Mandel I D, Carlin D & Baumash H. Alterations in lactoferrin and salivary gland disease. *J. Dent. Res.* 57:43-7, 1978. (Cited 45 times.)
2. Tabak L A, Mandel I D, Herrera M & Baumash H. Changes in lactoferrin and other proteins in a case of chronic recurrent parotitis. *J. Oral Pathol.* 7:91-9, 1978. (Cited 20 times.)
3. Roussel T, Lamblin G, Lhermitte M, Houdrett N, Lafitte J-J, Terini J-M, Klein A & Scharfman A. The complexity of mucins. *Biochimie* 70:1471-82, 1988.
4. Carraway K L & Hull S R. O-glycosylation pathway for mucin-type glycoproteins. *Bioessays* 10:117-21, 1989.
5. Quissell D O & Tabak L A. Salivary mucin secretion (Forte J G, ed.) *Handbook of physiology. Section 6: the gastrointestinal system. Volume 3. Salivary, gastric, pancreatic, and hepatobiliary secretion.* Fair Lawn, NJ: Oxford University Press, 1989. p. 79-81.

1A 20