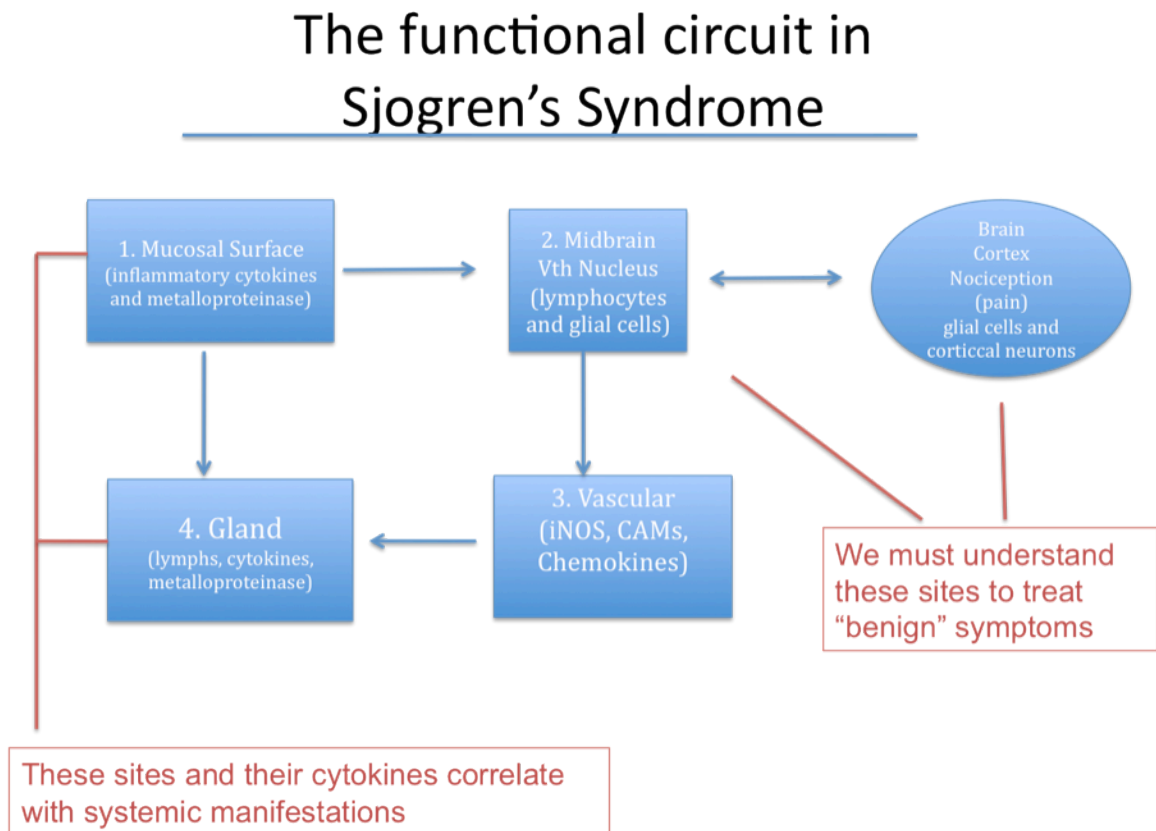


Figure 1: The Functional Circuit in Sjogren's Syndrome



Unmyelinated nerves are afferently directed to specific regions of the midbrain (lacrimatory and salvatory nuclei) of the Vth cranial nerve
This nuclei sends further afferents to different cortical regions that give rise to sensations of dryness or pain.
Efferent fibers are directed back to the Vth cranial nerve.
Sympathetic neural signals travel to the vasculature to provide increased permeability to water and other growth factors/nutrients found in saliva and tears.
Cholinergic innervation (including VIP) travel to the gland where they stimulate secretory function, production of specific salivary/lacrimal components, and myoepithelial cells.
The tear film and saliva are complex mixtures of water, protein, mucoproteins and lipids that contain specialized proteins termed defensins and mediators of inflammation.

Figure 2: Anatomic Correlate of Functional Circuit for Ocular Neurons

Integrated Lacrimal Functional Unit

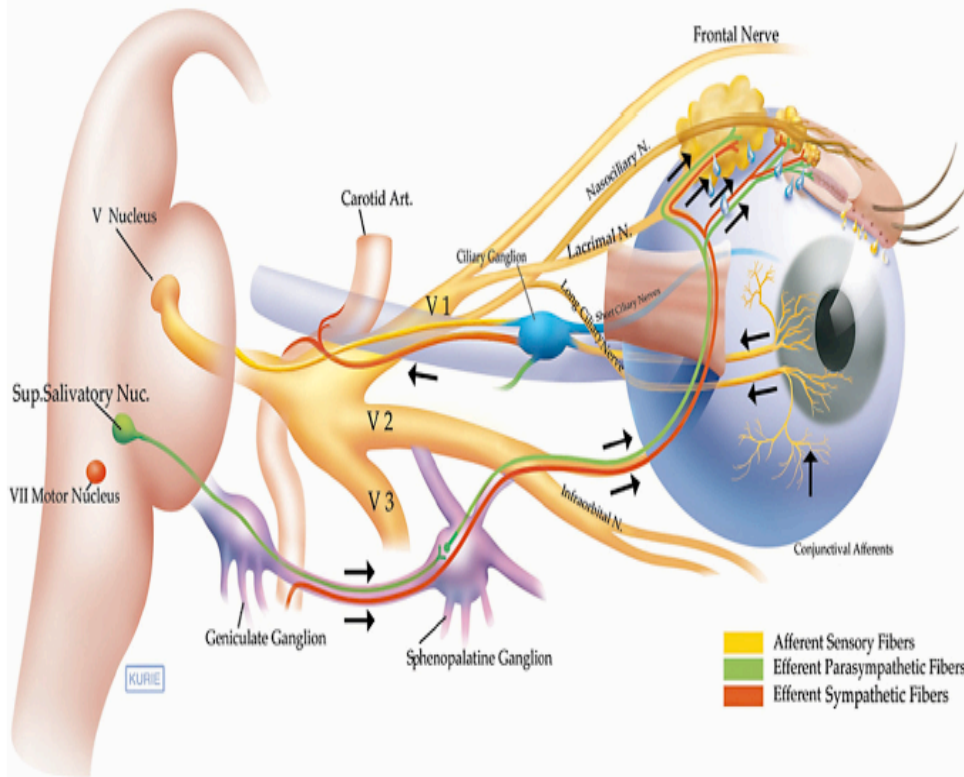


FIGURE 2. Integrated Lacrimal Functional Unit (LFU) that regulates secretion and delivery of tears to the cornea and ocular surface. Nociceptors in the cornea (yellow) synapse with autonomic, motor, and higher sensory neurons in the brainstem that innervate the tear-producing glands and orbicularis muscle to initiate blinking. Reprinted with permission from Beuerman R, et al.¹¹⁶