Supplementary Methods:

Because the fluorescent dye used in the study (proflavine) was not approved by the US Food and Drug Administration (FDA) for intraoral use, an investigational new drug exemption (IND) was obtained from the FDA for its use within this clinical study. Pregnant or nursing females and patients with known allergies to proflavine were excluded from the study. Out of 34 subjects who were approached to participate, 30 were enrolled and completed the study. The median age of the study group was 70 years; 25^{th} percentile: 56 years, 75^{th} percentile: 79 years). No adverse events occurred which were related to the study.

Immunohistochemical staining for Ki-67 (clone Mib-1, mouse, 1:100, Labvision), PHH3 (polyclonal rabbit, 1:400, Upstate (Millipore)), and p63 (clone A4A, mouse, 1:1000, Santa Cruz) was performed using standard techniques with the automated BOND MAX immunohistochemistry stainer by Vision Biosystems. The study pathologist reviewed the IHC slides and provided a quantitative assessment of nuclear staining for each marker in the mucosa of each specimen. Ki-67 staining was reported by identification of the most superficial layer stained; either the basal layer, lower one-third of the epithelium, mid one-third of the epithelium, or full thickness of the epithelium. p63 expression was reported as staining confined to the lower one-third, two-thirds, or full thickness of the epithelium. PHH3 staining was quantified by the number of positively stained nuclei in one 20x microscope field as well as epithelial location. Values for these independent parameters were then used alone and in combination to generate discrete IHC scores for each measurement site according to the criteria shown in **Supplementary Table 2**.