

Modifiers for Peri-Implant Mucosal Inflammation during Early Wound Healing

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OBJECTIVES

- Longterm integrity of implant devices made from titanium alloys and its effect on peri-implant pathogenesis have been recently questioned. We previously reported the presence of Titanium ion(Ti) within peri-implant and adjacent gingival crevicular fluid(PICF and GCF) both at clinically healthy and diseased sites.
- The aim of the current study was to evaluate inflammatory response and possible Ti contamination during early phases of peri-implant wound healing.

MATERIAL & METHODS

OSU IRB #2020H0039

INCLUSION CRITERIA

- * ≥ 18 yrs of age
- * No existing dental and/or orthopedic implants
- * Systemically healthy or controlled systemic diseases

EXCLUSION CRITERIA

- * Existing dental implant(s)
- * Smokers
- * Uncontrolled systemic health problems
- * Pregnancy

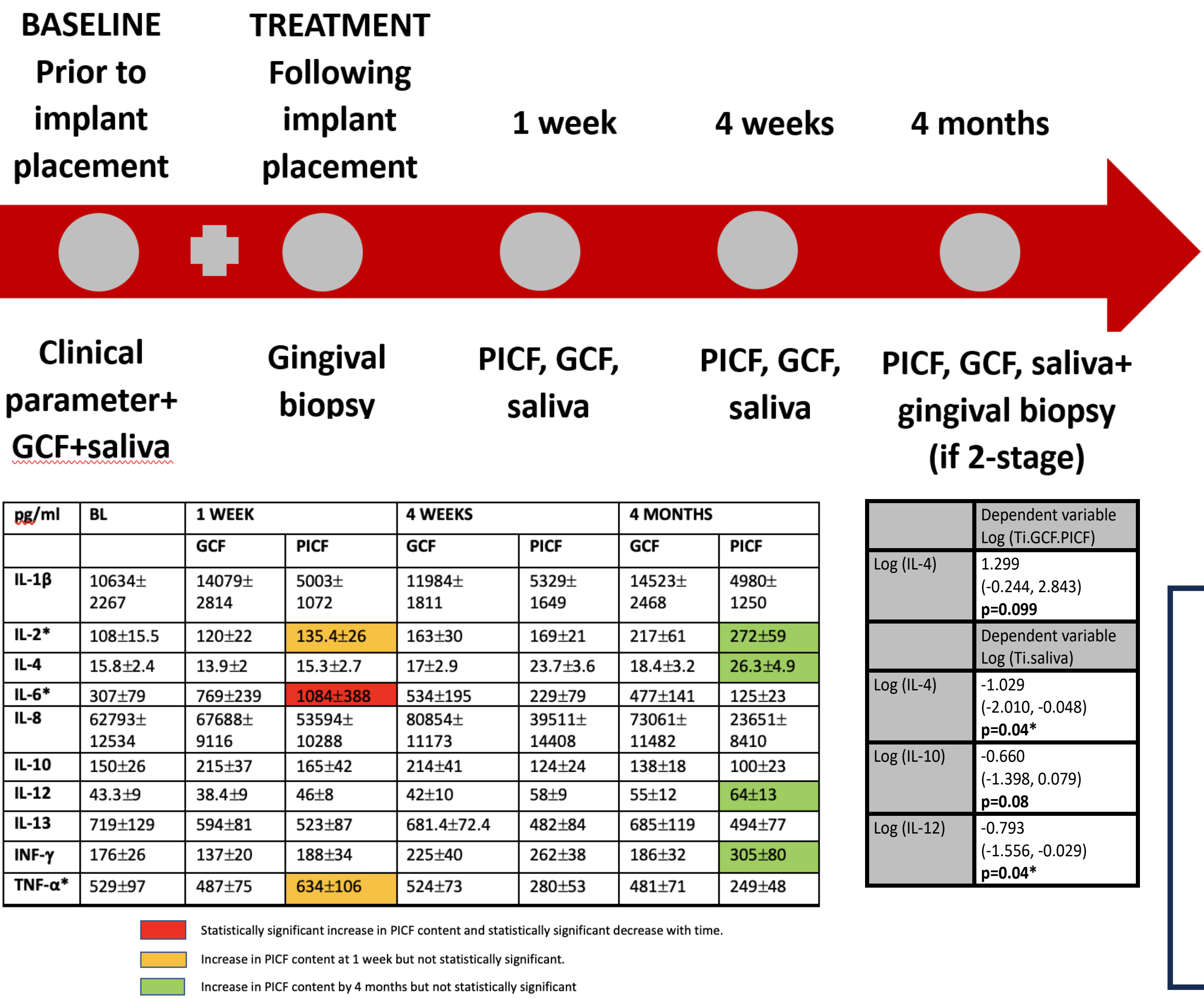
RESULTS

N= 21 patients		
Age (mean±se)	Female (N= 16)	49±4 yrs
	Male (N= 5)	46±5 yrs
Anatomical location	Maxilla (N= 9)	5 posteriors
	Mandible (N= 12)	12 posteriors
Site characteristics	Pristine (N= 10)	
	Previously grafted (N= 11)	
Surgery type	One stage (N=9)	
	Two stage (N= 12)	
Time of healing (mean±se)	106±6 days (43-152 days)	
Implant type	Nobel (N= 10)	
	Zimmer (N= 9)	
	Straumann (N= 2)	

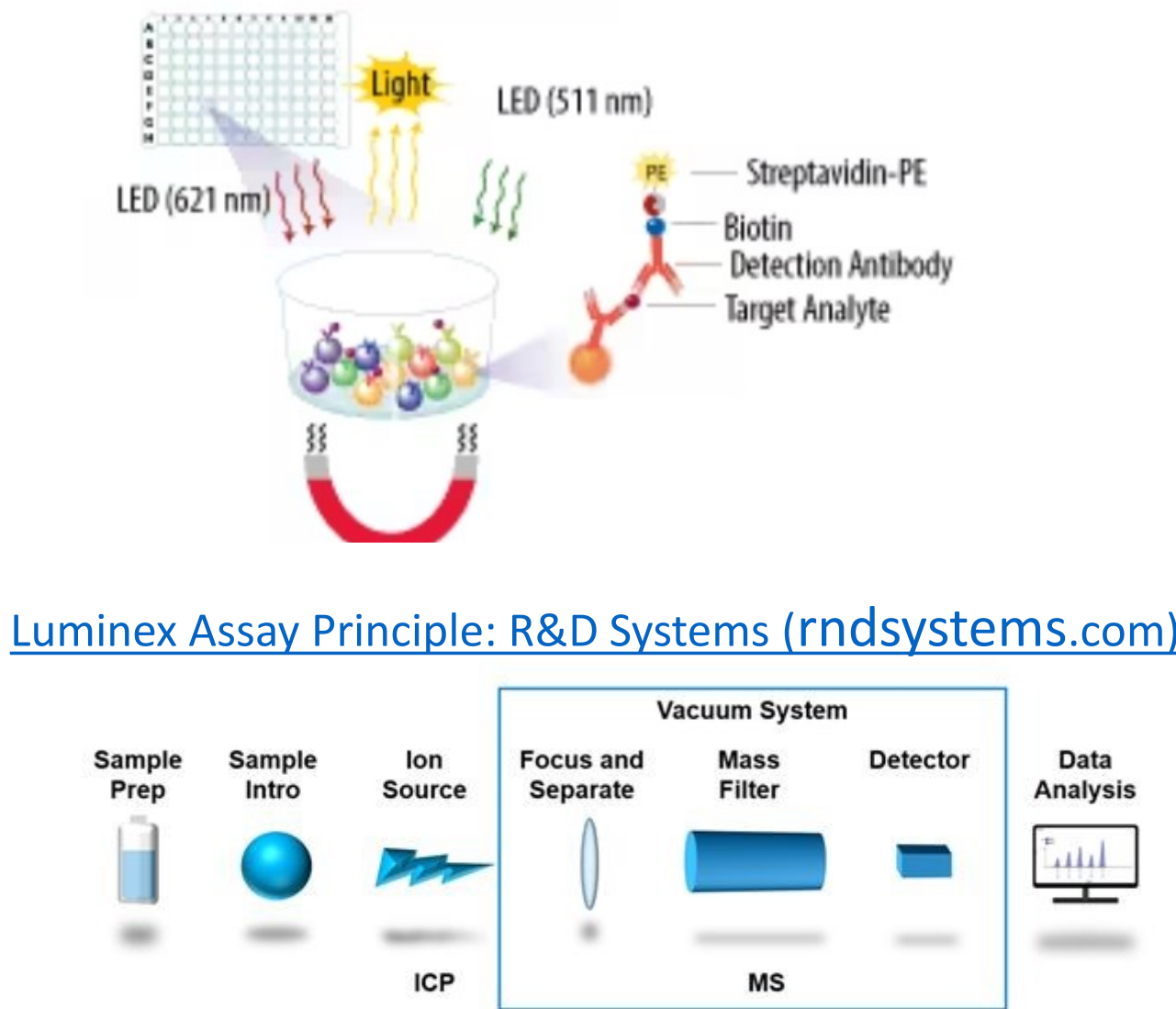
CONCLUSION

- Within the limits of this study, PICF and adjacent GCF Ti contamination occurs shortly following dental implant fixture placement and can be observed throughout osseointegration period.
- A negligible increase in saliva Ti levels following surgery also exists.
- Among the cytokines locally released following implant placement, IL-4 should be further investigated in relation to peri-implant host response to titanium device.

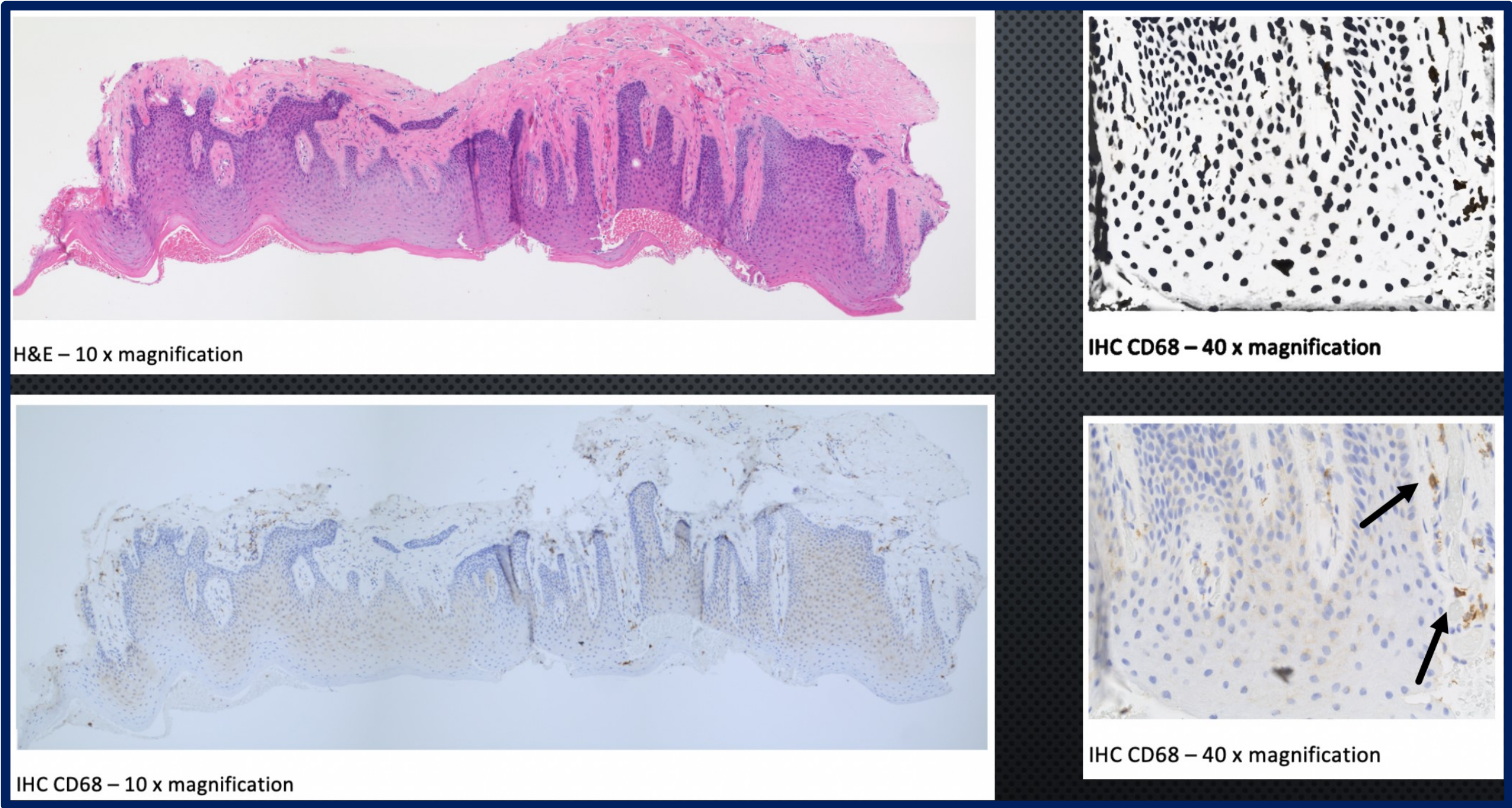
Reference: Kandaswamy E, Sakulpaptong W, Guo X, Ai N, Powell HM, Tatakis DN, Leblebicioglu B. Peri-implant Fluid Inflammatory Marker Levels are associated with titanium levels. JOMI Mar-Apr 2022;37(2):381-390 (This study was supported by a grant from Osseointegration Foundation to BL)



PICF and saliva sampling



Chemical Analysis, Life Sciences, and Diagnostics | Agilent



Histology and Immunohistochemistry of gingival biopsies

