

Oral Pathobionts in Cancer: Mechanistic Insights into *Prevotella intermedia* and *Fusobacterium nucleatum* in Tumor Development

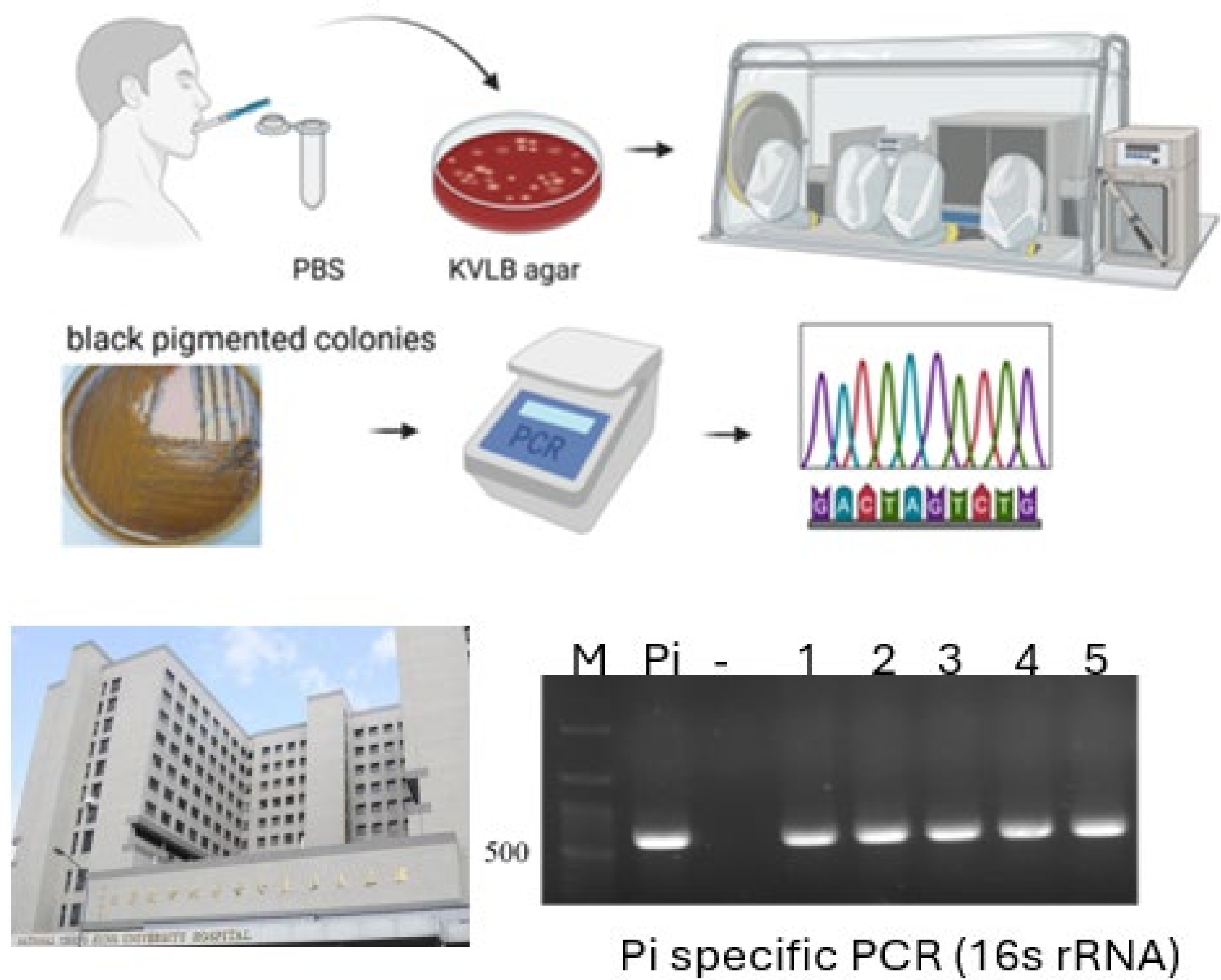
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Introduction

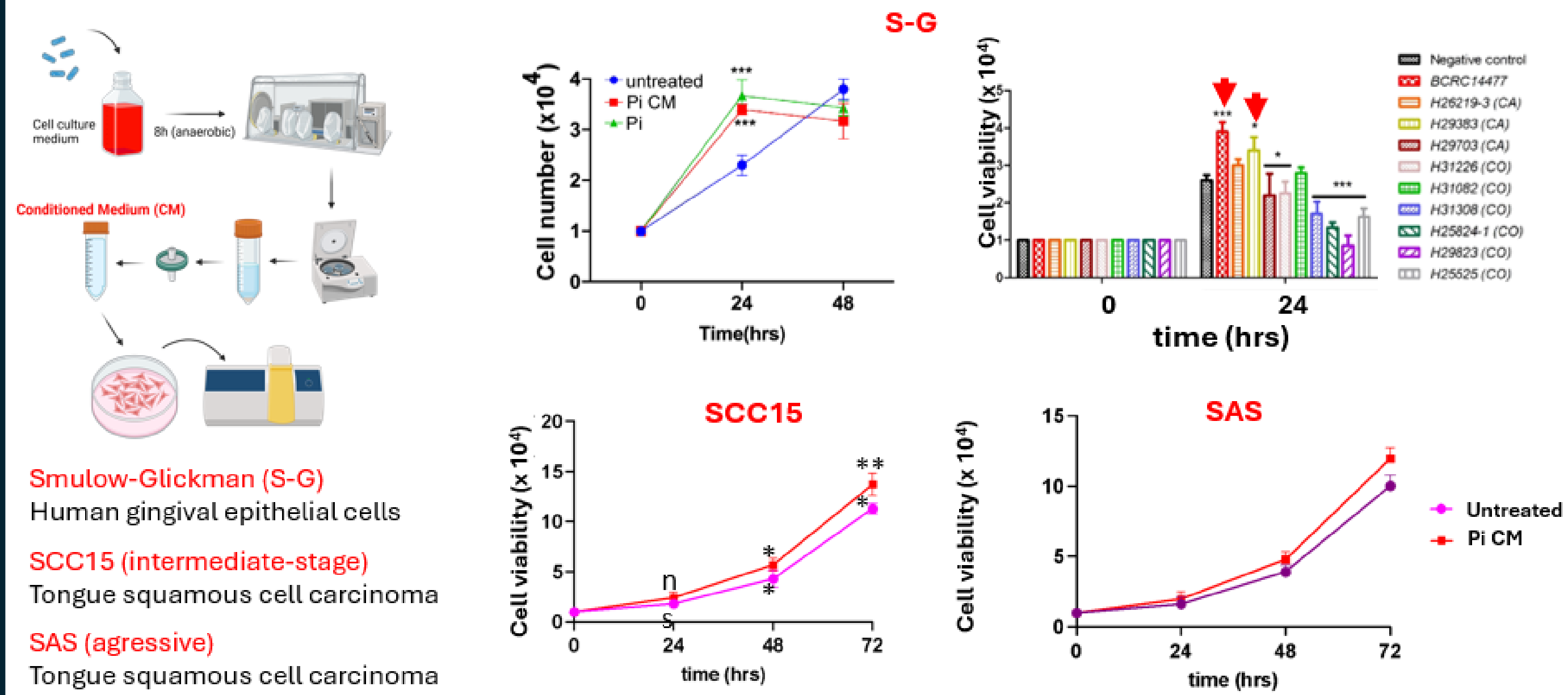
Oral squamous cell carcinoma (OSCC) accounts for over 90% of oral cancers, with about 380,000 new cases and 180,000 deaths annually worldwide. Early diagnosis yields a 5-year survival rate of up to 90%, but because OSCC is often detected late, the average survival rate is 68%. Major risk factors include tobacco, alcohol, human papillomavirus infection, and possibly the oral microbiome. The oral cavity harbors over 600 microbial species forming a complex ecosystem. Dysbiosis and poor oral hygiene can promote chronic inflammation and disease. Emerging evidence links oral microbes to systemic disorders such as Alzheimer's disease, diabetes, inflammatory bowel disease, and several cancers. Periodontal pathogens *Prevotella intermedia* and *Fusobacterium nucleatum* have been implicated in OSCC proliferation and metastasis, while the enrichment of other oral bacteria in OSCC patients suggests additional contributors to tumor development. In this study we present our preliminary findings on the role of these two pathobionts in cancer development.

Isolation of *F. nucleatum* and *P. intermedia* from the saliva of adult OSCC patients and controls

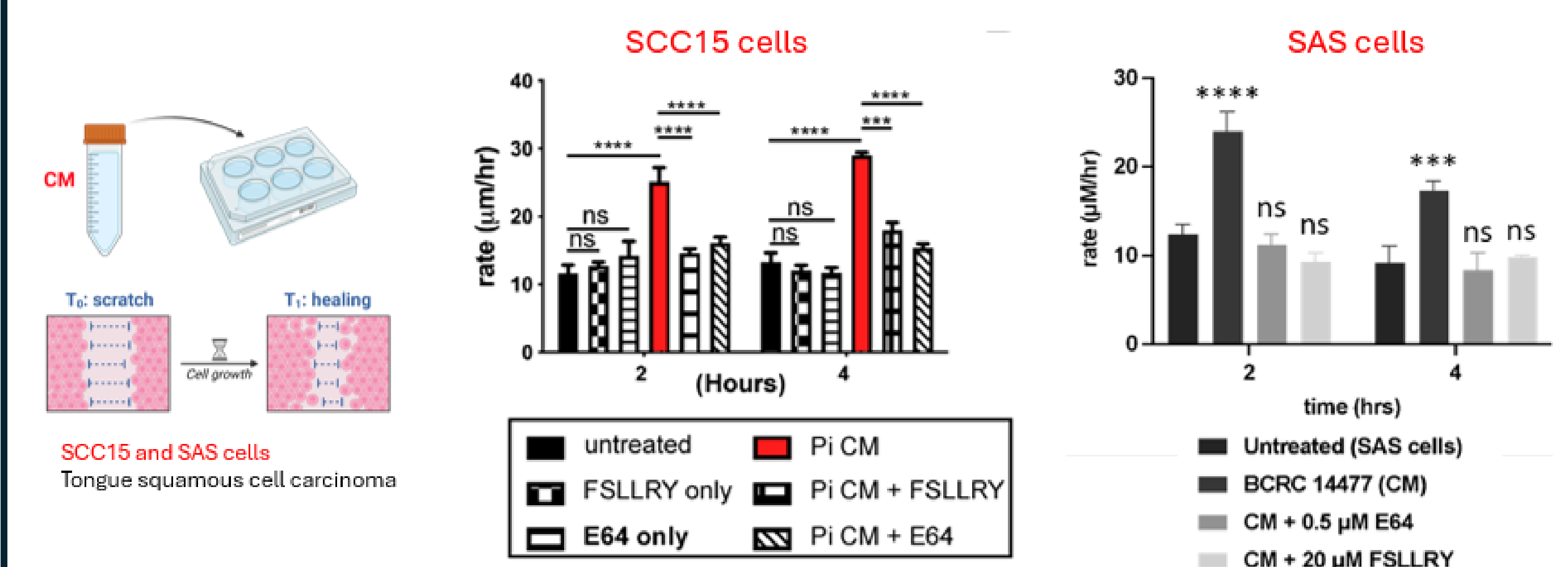
(NCKUH 2018-2019)



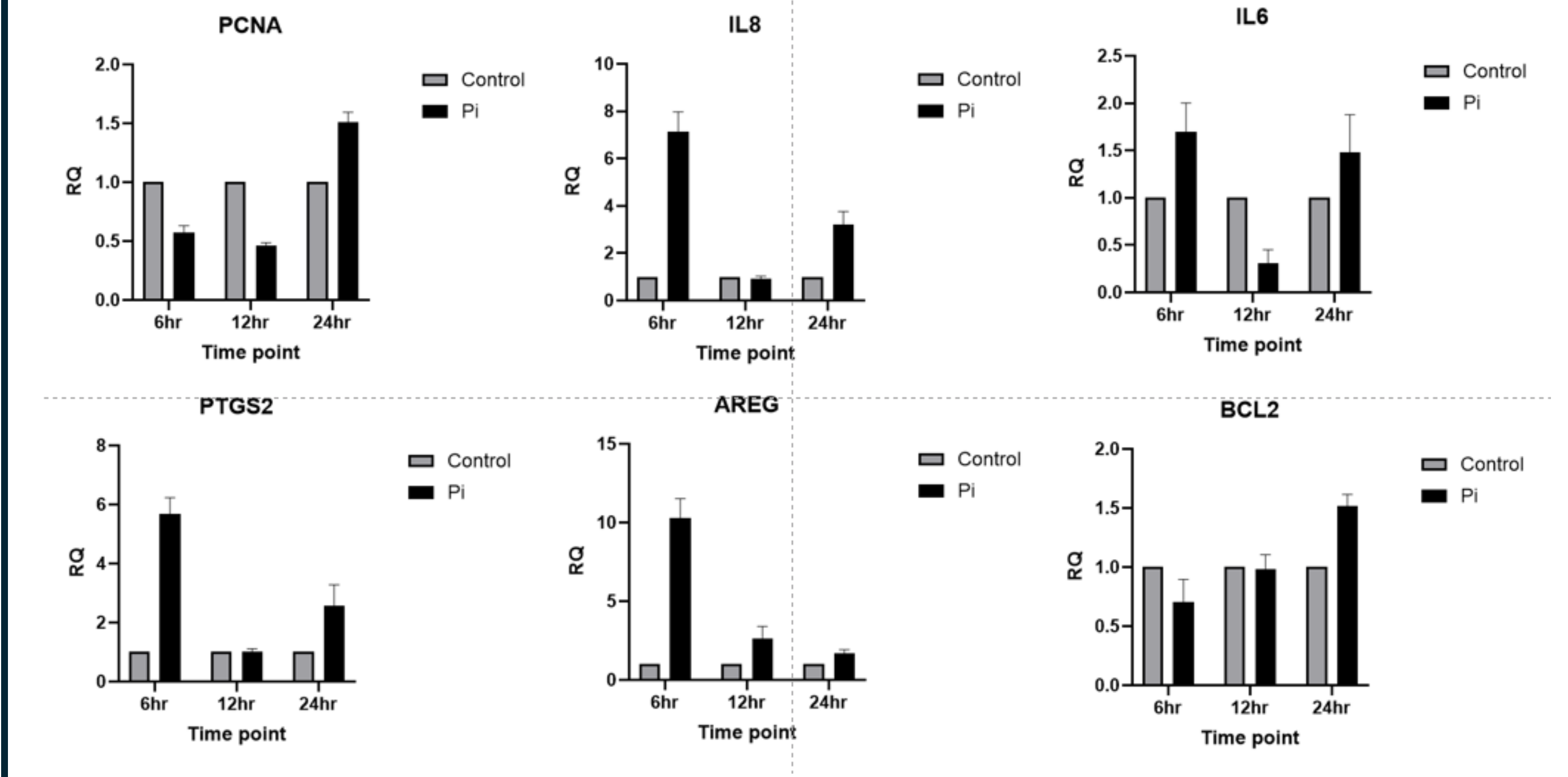
P. intermedia promotes proliferation of OSCC cells



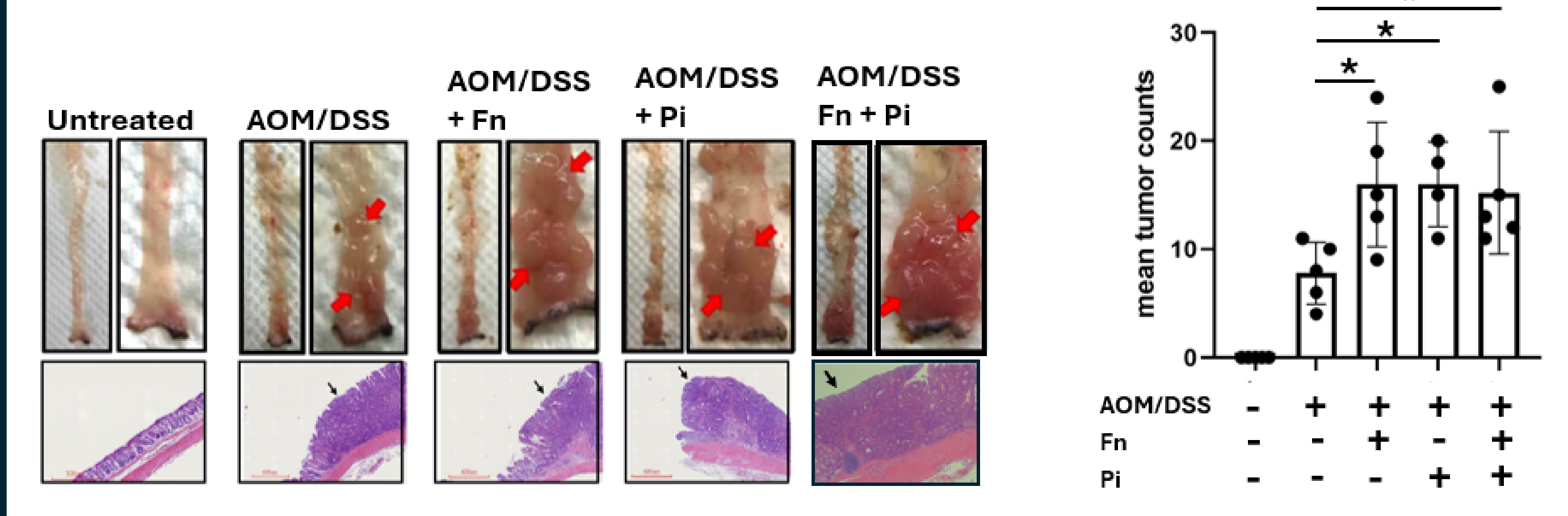
P. intermedia promotes migration rates OSCC cells



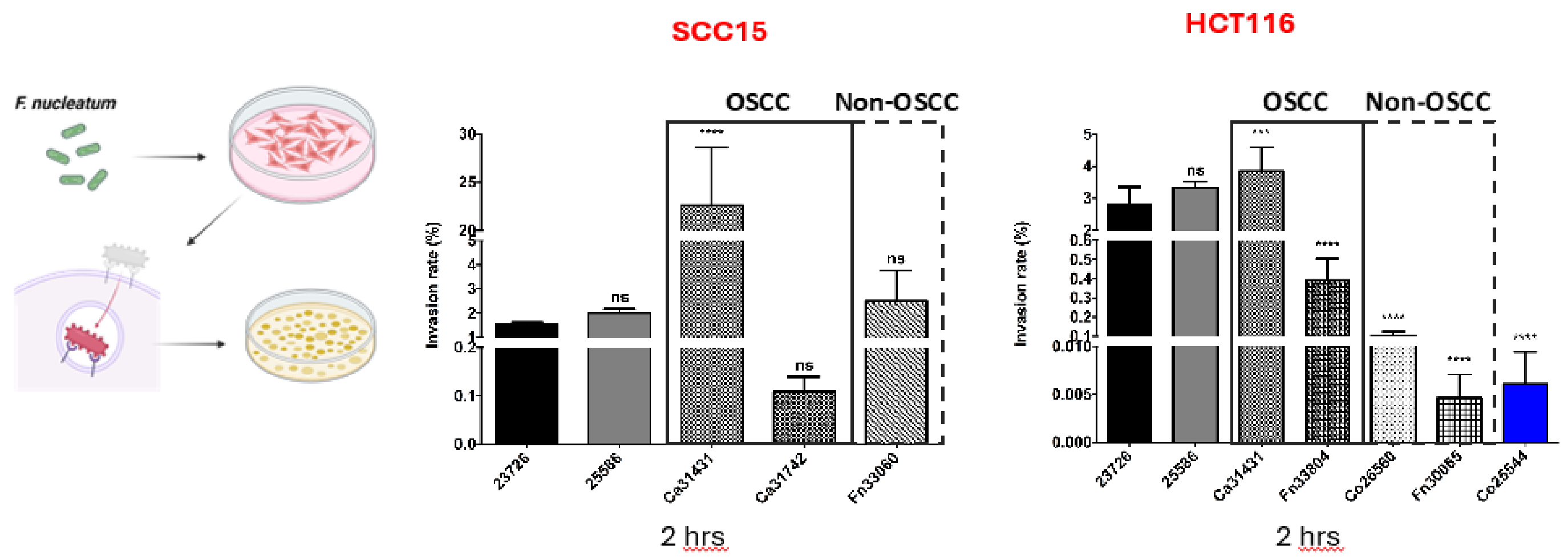
P. intermedia affects cancer signaling pathways



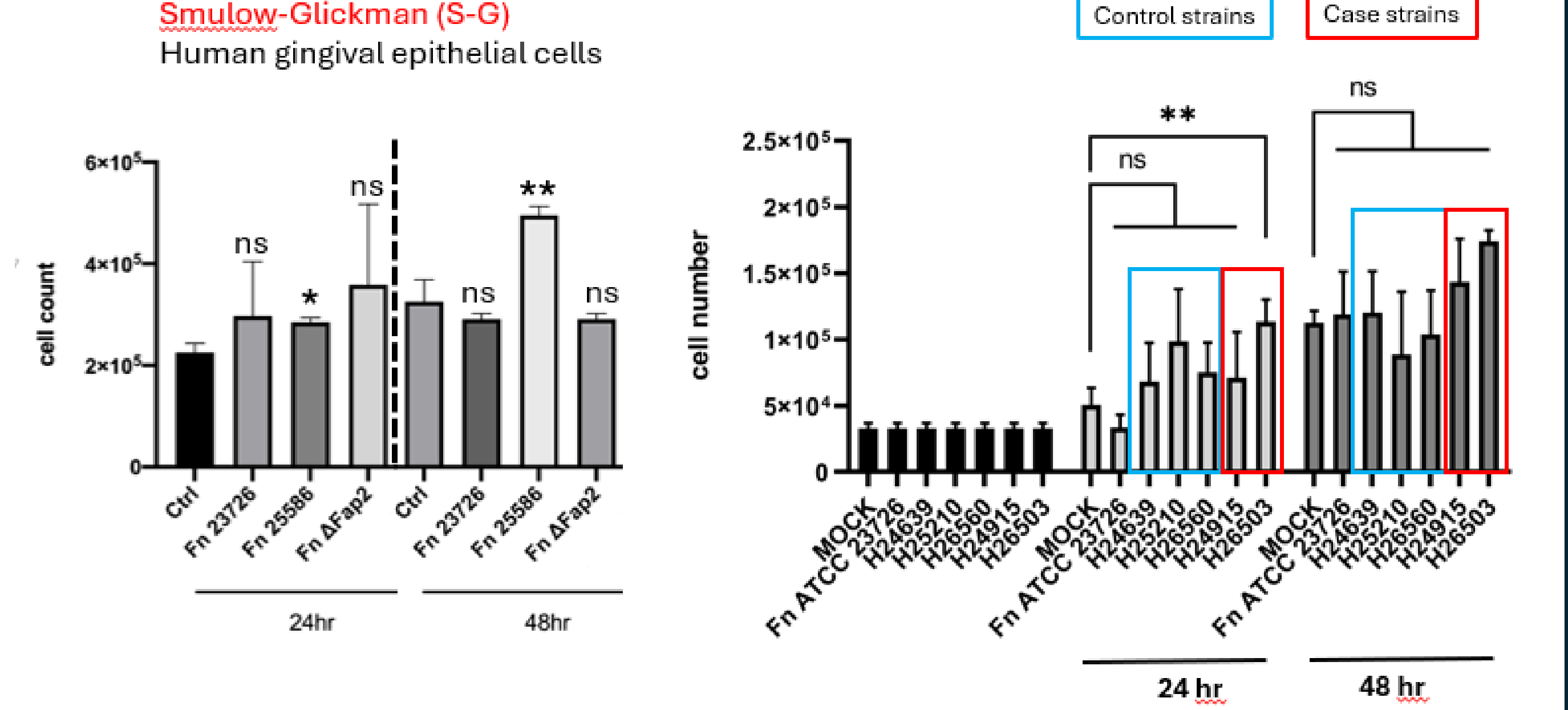
F. nucleatum and *P. intermedia* promotes CRC progression



Invasion of *F. nucleatum* isolates into oral and colorectal cancer cells



Invasion of *F. nucleatum* isolates into oral and colorectal cancer cells



F. nucleatum enhances migration of human cancer cells

