

## Curriculum Vitae: C J Seneviratne

**BDS (Hons), MPhil (SL) PhD (HK) Dip. Immunology (Pasteur, HK)**



### Academic qualifications

Advanced course on Proteomics Bioinformatics, Wellcome Trust, UK	2010
Diploma in Immunology, HKU Pasteur Institute of Hong Kong, HK	2009
PhD, Faculty of Dentistry, The University of Hong Kong, Hong Kong	2008
MPhil, University of Peradeniya, Sri Lanka	2005
BDS (Hons) Faculty of Dental Sciences, University of Peradeniya, Sri Lanka	2003

### Current Position:

**2013 May-** Assistant Professor, Oral Sciences, Faculty of Dentistry, National University of Singapore

### Previous Positions:

**2010 April-2013 April:** Research Assistant Professor, Oral Biosciences, Infection & Immunity Group, Faculty of Dentistry, The University of Hong Kong

Honorary Clinical Assistant Professor, Periodontology, Faculty of Dentistry, The University of Hong Kong

**2008 July-2010 April:** Post Doctoral Fellow, Oral Biosciences, Infection & Immunity Group, Faculty of Dentistry, The University of Hong Kong

**2003 March-2005 July:** Lecturer, Department of Oral Medicine & Periodontology, Faculty of Dental Sciences, University of Peradeniya, Sri Lanka

## Honors and Awards

- 2012: Faculty Knowledge Exchange Award, Faculty of Dentistry, HKU, Hong Kong
- 2011: Research Output Prize, Faculty of Dentistry, HKU, Hong Kong
- 2009: Research Output Prize, Faculty of Dentistry, HKU, Hong Kong
- 2008: Outstanding Research Postgraduate Student Award, HKU, Hong Kong
- 2008: IADR/Unilever Hatton Award, South East Asia Division (SEA), Manila, Philippines
- 2008: IADR/Colgate Award, Toronto, Canada
- 2007: Hiroshima University Award, Hiroshima, Japan

## Research Interest:

- ❖ Microbial Biofilms
- ❖ Salivary Biomarkers
- ❖ Candida infections
- ❖ OMICS Biology (Proteomics, Metagenomics)
- ❖ Anti-biofilm drugs, biomedical devices and tissue engineering
- ❖ Mucosal Immunity

## Patent

**C.J. Seneviratne\***, RYT Kao\*, LP Samaranayake, KY Yuen, Y Wang, SSW Wong, D Yang.

Novel Antifungal compound and Uses Thereof. Provisional US patent No.61733094 (Primary Inventor)

## Bibliography

### (A) Book Chapters

1. Samaranayake LP, Parahitiyawa NB, **Seneviratne CJ**. Chapter 9. Isolation of nucleic acids (including DNA and RNA) from yeasts, Handbook of Nucleic Acid Purification, Taylor & Francis CRC Press. 2008, Chapter 9: 169-188.
2. **Seneviratne CJ**, Jin LJ, Samaranayake LP. Molecular Microbiology of *Candida* Biofilms, Lambert Academic Publishing & Co, Saarbrücken Germany, 2010.

3. **Seneviratne CJ**, Samaranyake LP. Drug Resistance Mechanisms of Fungal Biofilms, in Biofilm Formation, Development & Properties Nova Science Publishers, Inc, NY, USA, 2010.

**(B) Journal articles**

1. Chaminda Jayampath Seneviratne, Ken Cham-Fai Leung, Chi-Hin Wong, Siu-Fung Lee, Xuan Li, Ping Chung Leung, Clara Bik San Lau, Elaine Wat, Lijian Jin. Nanoparticle-encapsulated Chlorhexidine against Oral Bacterial Biofilms. PLOS ONE (in press).
2. Tan CM, Tsoi JK, Seneviratne CJ, Matinlinna JP. Evaluation of the *Candida albicans* removal and mechanical properties of denture acrylics cleaned by a low-cost powered toothbrush. J Prosthodont Res. (in press)
3. Wang S, Guo L, Seneviratne CJ, Huang B, Han J, Peng L, Liu X, Zhang C. Biofilm formation of salivary microbiota on dental restorative materials analyzed by denaturing gradient gel electrophoresis and sequencing. Dent Mater J. 2014;33(3):325-31
4. Wong, SSW, Samaranyake LP, Seneviratne CJ.\* In pursuit of the ideal antifungal agent for *Candida* infections: High-throughput screening of small molecules. Drug Discovery Today (in press) (IF=6.8)\* corresponding author
5. Wong SW, Kao RT, Wang Y, Yuen KY, Yang D, Samaranyake LP, **Seneviratne CJ\***. In vitro and in vivo activity of a novel antifungal small molecule against *Candida* Infections. PLOS ONE; 9(1): e85836 (IF=3.7). \*corresponding author
6. Chen Y, Wong RW, McGrath C, Hagg U, **Seneviratne CJ**. Natural compounds containing mouthrinses in the management of dental plaque and gingivitis: a systematic review. Clin Oral Investig. 2014; 18:1-16.
7. **Seneviratne CJ\***, Yip JW, Chang JW, Zhang CF, Samaranyake LP. Effect of culture media and nutrients on biofilm growth kinetics of laboratory and clinical strains of *Enterococcus faecalis*. Arch Oral Biol. 2013; 58:1327-34. \*corresponding author
8. Herath TD, Darveau RP, **Seneviratne CJ**, Wang CY, Wang Y, Jin L. Tetra- and Penta-Acylated Lipid A Structures of *Porphyromonas gingivalis* LPS Differentially Activate TLR4-Mediated NF- $\kappa$ B Signal Transduction Cascade and Immuno-Inflammatory Response in Human Gingival Fibroblasts. PLOS ONE. 2013; 8:e58496.
9. Herath TD, Wang Y, **Seneviratne CJ**, Darveau RP, Wang CY, Jin L. The expression and regulation of matrix metalloproteinase-3 is critically modulated by *Porphyromonas gingivalis* lipopolysaccharide with heterogeneous lipid A structures in human gingival fibroblasts. BMC Microbiol. 2013; 13:73.

10. Li X, Zhu XF, Zhang CF, Cathro P, **Seneviratne CJ**, Shen S. Endodontic bacteria from primary and persistent endodontic lesions in Chinese patients as identified by cloning and 16S ribosomal DNA gene sequencing. *Chin Med J (Engl)*. 2013;126:634-9
11. Chen Y, Wong RW, **Seneviratne CJ**, Hagg U, McGrath C, Samaranayake LP. The effects of natural compounds-containing mouthrinses on patients with fixed orthodontic appliance treatment: clinical and microbiological outcomes. *Int J Paediatr Dent*. 2013; 23:452-59.
12. **Seneviratne CJ\***, Wang Y, Jin L, Wong S, Herath TDK, Samaranayake LP. Unravelling the Resistance in Microbial Biofilms: Has Proteomics been helpful? *Proteomics* 2012; 12: 651-65 \*corresponding author
13. Biocide resistance of *Candida* and *Escherichia coli* biofilms may be associated with higher antioxidative capacities Leung CY, Chan YC, Samaranayake LP, **Seneviratne CJ\***. *J Hosp Infect*. 2012; 81:79-86. \*corresponding author
14. **Seneviratne CJ**, CF Zhang, LP Samaranayake. Dental Plaque Biofilm in Oral Health and Disease, *Chine J of Dental Res* 2012; 14: 221-30.
15. Gao XL, **Seneviratne CJ**, Lo EC, Chu CH, Samaranayake LP. Novel and conventional assays in determining abundance of *Streptococcus mutans* in saliva. *Int J Paediatr Dent*. 2012; 22:363-68.
16. Chen Y, Wong RW, **Seneviratne CJ**, Hägg U, McGrath C, Samaranayake LP. Comparison of the antimicrobial activity of Listerine and Corsodyl on orthodontic brackets in vitro. *Am J Orthod Dentofacial Orthop*. 2011; 140:537-42.
17. **Seneviratne CJ**, Wong SS, Yuen KY, Meurman JH, Pärnänen P, Vaara M, Samaranayake LP. Antifungal Susceptibility and Virulence Attributes of Bloodstream Isolates of *Candida* from Hong Kong and Finland. *Mycopathologia*. 2011; 172:389-95.
18. Herath TD, Wang Y, **Seneviratne CJ**, Lu Q, Darveau RP, Wang CY, Jin L. *Porphyromonas gingivalis* lipopolysaccharide lipid A heterogeneity differentially modulates the expression of IL-6 and IL-8 in human gingival fibroblasts. *J Clin Periodontol*. 2011; 38: 694-701.
19. Chu CH, Mei L, **Seneviratne CJ**, Lo EC. Effects of silver diamine fluoride on dentine carious lesions induced by *Streptococcus mutans* and *Actinomyces naeslundii* biofilms. *Int J Paediatr Dent*. 2011; 22: 2-10.
20. Watamoto T, Samaranayake LP, Egusa H, Yatani H, **Seneviratne CJ**. Transcriptional regulation of drug-resistance genes in *Candida albicans* biofilms in response to antifungals. *J Med Microbiol*. 2011; 60:1241-77. \*corresponding author

21. **Seneviratne CJ**, Wong RW, Hägg U, Chen Y, Herath TD, Lakshman Samaranayake P, Kao R. Prunus mume extract exhibits antimicrobial activity against pathogenic oral bacteria. *Int J Paediatr Dent*. 2011; 21:299-305.
22. Meurman JH, Pärnänen P, **Seneviratne CJ**, Samaranayake LP., Saarinen AM, Kari K. Prevalence and antifungal drug sensitivity of non-*albicans* *Candida* in oral rinse samples of self-caring elderly. *Gerodontology*. 2011; 28:246-52.
23. Low B, Lee W, **Seneviratne CJ**, Samaranayake LP, Hägg U. Ultrastructure and morphology of biofilms on thermoplastic orthodontic appliances in 'fast' and 'slow' plaque formers. *Eur J Orthod*. 2011; 33:577-83.
24. Chen Y, Wong RW, **Seneviratne CJ**, Hägg U, McGrath C, Samaranayake LP, Kao R. The antimicrobial efficacy of Fructus mume extract on orthodontic bracket: a monospecies-biofilm model study in vitro. *Arch Oral Biol*. 2011; 56: 16-21.
25. da Silva WJ, **Seneviratne CJ**, Samaranayake LP, Del Bel Cury AA. Bioactivity and architecture of *Candida albicans* biofilms developed on poly(methyl methacrylate) resin surface. *J Biomed Mater Res B Appl Biomater*. 2010; 94: 149-56.
26. Wong RW, Hägg U, Samaranayake L, Yuen MK, **Seneviratne CJ**, Kao R. Antimicrobial activity of Chinese medicine herbs against common bacteria in oral biofilm. A pilot study. *Int J Oral Maxillofac Surg*. 2010; 39:599-605.
27. **Seneviratne CJ**, Wang Y, Jin LJ, Abiko Y, Samaranayake LP. Proteomics of drug resistance in *Candida glabrata* biofilms. *PROTEOMICS* 2010; 10:1444-54.
28. Watamoto T, Samaranayake LP, Jayatilake JA, Egusa H, Yatani H, **Seneviratne CJ**. Susceptibility Of *Candida albicans* Filamentation-Defective Mutants To Clinical Biocides. *J Hospital Infection*. 2010;74:189-91. \*corresponding author
29. Kang K, Wong KS, **Seneviratne CJ**, Samaranayake LP, Fong WP, Tsang PW. In vitro synergistic effects of metergoline and antifungal agents against *Candida krusei*. *Mycoses*. 2010; 53: 495-9.
30. So CW, Tsang PW, Lo PC, **Seneviratne CJ**, Samaranayake LP, Fong WP Photodynamic inactivation of *Candida albicans* by BAM-SiPc. *Mycoses*. 2010; 53:215-20.

31. Watamoto T, Samaranayake LP, Jayatilake JA, Egusa H, Yatani H, **Seneviratne CJ**. Effect of filamentation and mode of growth on antifungal susceptibility of *Candida albicans*. Int J Antimicrob Agents. 2009; 34:333-9. \*corresponding author
32. **Seneviratne CJ**, Silva WJ, Jin LJ, Samaranayake YH, Samaranayake LP. Architectural analysis, viability assessment and growth kinetics of *Candida albicans* and *Candida glabrata* biofilms. Arch Oral Biol 2009; 54:1052-60.
33. Thein ZW, **Seneviratne CJ**, Samaranayake YH and Samaranayake LP. Community Lifestyle of *Candida* in Mixed Biofilms: a mini review. Mycoses. 2009; 52:467-7.
34. **Seneviratne CJ**, Zhang T, Fang HH, Jin LJ, Samaranayake LP. Distribution Coefficients of Dietary Sugars in Artificial *Candida* Biofilms. Mycopathologia. 2009; 167:325-31.
35. Samaranayake YH, Cheung BP, Parahitiyawa N, **Seneviratne CJ**, Yau JY, Yeung KW, Samaranayake LP. Synergistic activity of lysozyme and antifungal agents against *Candida albicans* biofilms on denture acrylic surfaces. Arch Oral Biol. 2009; 54:115-26.
36. **Seneviratne CJ**, Samaranayake LP. Dental Plaque as a microbial biofilm, friend or foe? *Dental Asia* 2009 May/June issue.
37. **Seneviratne CJ**, Jin LJ, Samaranayake LP. Biofilm lifestyle of *Candida*: a mini review. Oral Dis. 2008; 14: 582-90
38. **Seneviratne CJ**, Jin LJ, Samaranayake YH, Samaranayake LP. (2008) Cell density and cell aging as factors modulating antifungal resistance of *Candida albicans* biofilms. Antimicrob Agents Chemother. 2008; 52: 3259-3266.
39. Wang Y, **Seneviratne CJ**. Biomarker discovery in clinical proteomics: strategies for exposing low abundant proteins. Current Proteomics. 2008; 5: 104-114.
40. **Seneviratne CJ**, Wang Y, Jin L, Abiko Y, Samaranayake LP. (2008) *Candida albicans* biofilm formation is associated with increased anti-oxidative capacities. PROTEOMICS. 2008; 8; 2936-47.
41. **Seneviratne CJ**, Wong RW, Samaranayake LP. Potent anti-microbial activity of traditional Chinese medicine herbs against *Candida* species. Mycoses. 2008; 51: 30-4.

42. **Seneviratne CJ**, Samaranayale LP. An overview of H5N1 Infection and its implications for dentistry. *International Journal of Clinical Dentistry*. 2008; 1:27-45.
43. da Silva WJ, **Seneviratne CJ**, Parahitiyawa N, Rosa EA, Samaranayake LP, Del Bel Cury AA. Improvement of XTT assay performance for studies involving *Candida albicans* biofilms. *Braz Dent J*. 2008; 19:364-9.

### **Grants:**

- I. **2014/2016:** Oral health, oral microbiome and salivomics in pregnant and post-partum Chinese women in Singapore: A pilot prospective cohort study, Oral Health Seed Grand, NUHS, Singapore (PI)
- II. **2014/2016:** The "new haploid state" of *Candida albicans* on biofilm formation, drug resistance, mucosal infections and transcription regulators, National Medical Research Council, Singapore (PI)
- III. **2013/2016:** Unravelling the facets of Host Response to Microbial Biofilms using OMICS Biology Approach, NUS Start-up Fund, Singapore (PI)
- IV. **2012/14:** Mechanism of Antifungal Resistance in *Candida* Persisters: Roadmap to Unravel Biofilm Resistance?, Health and Medical Research Fund, Hong Kong (PI)
- V. **2012/14:** Novel antifungal small molecule for multi-drug resistant *Candida*: anti-biofilm activity, in vivo efficacy and cellular targets, Health and Medical Research Fund, Hong Kong (PI)
- VI. **2012/14:** Identification of antifungal molecules from novel probiotic Lactobacillus bacteria for controlling *Candida* infection, Health and Medical Research Fund, Hong Kong (PI)
- VII. **2012/14:** Antifungal resistance and virulence attributes of *Candida* bloodstream isolates derived from Hong Kong, Health and Medical Research Fund, Hong Kong (PI)
- VIII. **2012/14:** 'Raising the alarmone' in Staphylococcus aureus: establishing the molecular basis of the stringent response, General Research Fund, Hong Kong (Co-I).
- IX. **2012/14:** Engineering human dental pulp tissues using prevascularized microtissue spheroids constructed by dental pulp stem cells and gene-modified endothelial cells, General Research Fund, Hong Kong (Co-I).

- X. **2012/14:** Impact of oral bacteria on unmasking bisphosphonate-related osteonecrosis of the jaws, General Research Fund, Hong Kong (Co-I).
- XI. **2012/14:** Nano-encapsulated Chinese herbal extracts as novel immunomodulators and enhancers of innate host defense in human gingiva, General Research Fund, Hong Kong (Co-I).
- XII. **2011/12:** Structure-Activity Relationship of Novel Antifungal Small molecule against *Candida*, Small project funding, HKU, Hong Kong (PI).
- XIII. **2011/12:** Role of oral bacteria in unmasking bisphosphonate-related osteonecrosis of the jaws. HKU/ Seed Funding Programme for Basic Research, HKU, Hong Kong (Co-I).
- XIV. **2011/12:** Stress response in the oral pathogen *Fusobacterium nucleatum*: the interplay between polyphosphate metabolism and the stringent response. Seed Funding Programme for Basic Research, HKU, Hong Kong (Co-I).
- XV. **2011/13:** Host, Salivary, Virulent and Molecular Attributes to the Development of Oral Candidiasis During Intensity Modulated Radiation Therapy (IMRT) for Nasopharyngeal Carcinoma (NPC) – A Prospective Study, Health and Medical Research Fund, Hong Kong (Co-I).
- XVI. **2010/11:** Multiplex PCR array for detection and quantification of caries associated bacteria, Seed Funding Programme for Applied Research/HKU, Hong Kong (PI).
- XVII. **2010/11:** Cross-talk of host oral epithelial cells with commensal and pathogenic bacteria, Seed Funding for Basic Research, HKU, Hong Kong (PI).
- XVIII. **2011/12:** Diagnostic and prognostic markers related to pathogenic bacteria in endodontic lesions of failed cases. Small Project Funding, HKU, Hong Kong (Co-I)
- XIX. **2010/11:** Identification of Immuno-proteome of *Candida albicans* using a murine candidiasis model Seed Funding Programme for Basic Research, HKU, Hong Kong (Co-I)
- XX. **2009/10:** Phosphoproteomics of *Candida* hyphal formation, Small Project Funding, HKU, Hong Kong, Hong Kong (PI).
- XXI. **2008/09:** Molecular mechanisms regulating innate immune responses of oral epithelial cells to *Candida albicans* infection, Small Project Funding, HKU, Hong Kong (Co-I)
- XXII. **2004:** Development of Multiplex PCR Diagnostic Method for Rapid Identification of *Candida* Species in Oral Pre-Malignant Lesions Asian Developmental Bank Grant, Technology Personnel Development Project, Ministry of Science & Technology, Sri Lanka (PI)



XXIII. **2004:** Effectiveness of systemic antibiotic treatment in the management of cyclosporine induced gingival overgrowth in kidney transplant patients. A prospective comparative clinical trial, WHO Research Strengthening Grant, Kandy Society of Medicine, Sri Lanka (PI)

**Invited Reviewer:**

Journal of Dental Research, Journal of Proteome Research, Critical Reviews in Microbiology, Oral Diseases, Journal of Prosthodontic Research, Journal of Medical Microbiology, Microbial Pathogenesis, Archives of Oral Biology, American Journal of Dentistry, Journal of Oral Pathology and Medicine, Mycopathologia, Fungal Biology, Mycoses, Medical Mycology, Journal of Investigative and Clinical Dentistry, Hong Kong Dental Journal, Water Research, International Journal of Indian Medical Research