

## CURRICULUM VITAE

### Stephen Hsu, Ph.D.

Associate Professor  
 Department of Oral Biology and Maxillofacial Pathology  
 School of Dentistry  
 School of Graduate Studies  
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### PERSONAL

Citizenship: US.  
 Sex: Male.  
 Marital status: Married to Tracy, two sons; Alexander (5) and Andrew (4).

### EDUCATION

1982 B.S. Wuhan University, Wuhan, China. Biochemistry.  
 1985 M.A., Montclair State University, Upper Montclair, NJ,  
 Molecular Biology.  
 1991 Ph.D., University of Cincinnati College of Medicine  
 Cell Biology and Anatomy.

### PROFESSIONAL EXPERIENCE

2007 – present Research Biologist, Veterans Affairs Medical Center, US Department of  
 Veterans Affairs, Augusta, Georgia  
 2004 – present Associate Professor, Department of Oral Biology and Maxillofacial  
 Pathology, School of Dentistry, School of Graduate Studies, Institute of  
 Molecular Medicine and Genetics, School of Medicine, Medical College  
 of Georgia. Augusta, Georgia.  
 1999- 2004 Assistant Professor, Department of Oral Biology and Maxillofacial  
 Pathology, School of Dentistry, Medical College of Georgia. Augusta,  
 Georgia.  
 1998-1999 Research Fellow (NCI training grant recipient), NYU Medical Center,  
 New York, NY. Tumor Biology (Lung Cancer).  
 1997- 1998 Assistant Professor, National University of Singapore,  
 Department of Biochemistry, School of Medicine.  
 1995- 1998 Host and commentator, ABC-ESPN.  
 1991-1995 Post-Doctoral Fellow, Memorial Sloan-Kettering Cancer  
 Center, New York, NY. Tumor Biology (Colon Cancer).

### ACADEMIC AWARDS

1984 Graduate Teaching Assistant Scholarship

	Montclair State University, Upper Montclair, NJ
1984	Sigma Xi Research Award, Montclair State University, NJ
1985	Graduate Teaching Assistant scholarship University of Cincinnati, Cincinnati, OH
1987	Nomination for Best Teacher's Award (Golden Apple Award ). University of Cincinnati, Cincinnati, OH
1989	Graduate Student Travel Award University of Cincinnati, Cincinnati, OH
1990	Graduate Student Travel Award University of Cincinnati, Cincinnati, OH
1998	Ruth L. Kirstein Research Service Award (NCI training grant 5 T32 ES 7267-7). New York University Medical Center, NY
2005	Innovation Award, Medical College of Georgia
2006	Who's Who in America, and Who's Who in American Education.
2006	Who's Who in Science and Engineering, 2006-2007

## SCIENTIFIC AND PROFESSIONAL SOCIETIES

Member:	American Association for Cancer Research. American Association for Dental Research. Society for Investigative Dermatology.
President:	American Association for Dental Research, Georgia Chapter 2001.

## PUBLICATIONS IN REFEREED JOURNALS

1. **Hsu, S.**, Jaspers, S. R., Davis, B.B., Cardell, Jr. R. R., Miller, Jr. T. B. and Drake, R.L. (1990) Appearance of a nonfunctional isozyme of hepatic glycogen synthase in late gestation. *Arch. Biochem. Biophys* 281: 152-156.
2. Lee, H.L., Lustigman, B., Chu, I-Y and **Hsu, S.** (1992) Effect of lead and cobalt on the growth of *Anacystis nidulans*. *Bull. Environ. Contam. Toxicol.* 48: 230-236.
3. **Hsu, S.**, Cardell, Jr. R. R. and Drake, R. L. (1993) Maternal malnutrition does not affect fetal hepatic glycogen synthase ontogeny. *Digestive Diseases and Sciences* 38: No.8 1500-1504.
4. Yan, Z., **Hsu, S.**, Winawer, S. and Friedman, E. (1992) TGF beta 1 inhibits retinoblastoma gene expression but not pRB phosphorylation in TGF beta 1-growth stimulated colon carcinoma cells. *Oncogene* 7: 801-805.
5. Hafez, M.M., **Hsu, S.**, Yan, Z., Winawer, S. and Friedman, E. (1992) Two roles for TGF beta 1 in colon enterocytic cell differentiation. *Cell Growth & Differentiation* 3: 753-762.
6. Lee, H., **Hsu, S.**, Winawer, S. and Friedman, E. (1993) Signal transduction through ERK-like pp57 blocked in differentiated colon carcinoma cells having low levels of *c-src* kinase. *Journal of Biological Chemistry* 268: 8181-8187.
7. **Hsu, S.**, Huang, F., Hafez, M., Winawer, S. and Friedman, E. (1994) Colon carcinoma cells switch their response to transforming growth factor b1 with tumor progression. *Cell Growth & Differentiation* 5: 267-275.
8. **Hsu, S.**, Huang, F., Yan, Z., Wang, L., Banerjee, S., Winawer, S., and Friedman, E. (1994) The role of nm23 in TGF b1-mediated adherence and growth arrest. *Cell Growth & Differentiation* 5: 909-917.

9. Zeng, Z., **Hsu, S.**, Zhang, Z., Cohen, A. M., Enker, W. E., Turnbull, A. A., and Guillen, J. G. (1994) High levels of nm23-H1 gene expression is associated with local colorectal cancer progression not with metastases. *British Journal of Cancer* 70: 1025-1030.
10. Huang, F., **Hsu, S.**, Yan, Z., Smith, K., Winawer, S. and Friedman, E. (1994) The capacity for growth stimulation by TGF b1 seen only in advanced colon cancers can not be ascribed to mutation in APC, DCC, p53 or *ras*. *Oncogene* 9:3701-3706.
11. **Hsu, S.**, Huang, F., Ossowski, L. and Friedman, E. (1995) Colon carcinoma cells with inactive nm23 show increased motility and response to motility factors. *Carcinogenesis*; 16: 2259-2262.
12. **Hsu, S.**, Huang, F. and Friedman, E. (1995) Platelet-derived growth factor-B increases colon cancer cell growth *in vivo* by a paracrine effect. *Journal of Cell Physiology* 165: 239-245.
13. **Hsu, S.** (2001) Green Tea & Oral Cancer. *The Journal of Georgia Dental Association*. 31: 32-33
14. **Hsu S.**, Lewis JE., Borke JL., Singh B., Dickinson DP, Caughman GB., Athar M., Drake L., Aiken AC., Huynh CT., Das B., Osaki T., and Schuster GS. (2001) Chemopreventive Effects of Green Tea Polyphenols Correlate with Reversible Induction of p57 Expression. *Anticancer Research*. 21: 3743-3748
15. **Hsu S.**, Borke, JL., Lewis JE, Singh B., Aiken AC., Huynh CT., Schuster G., Caughman GB., Dickinson D.P., Smith, AK., Osaki T., and Wang XF. (2002) Transforming Growth Factor  $\beta$ 1 Dysregulation in a Human Oral Carcinoma Tumor Progression Cell Line Model. *Cell Prolif.* 35:183-92.
16. **Hsu S.**, Singh B., Lewis JE., Borke JL., Dickinson DP, Caughman GB., Drake L., Aiken AC., Huynh CT., and Schuster GS. (2002) Chemoprevention of Oral Cancer by Green Tea. *General Dentistry*. 50:140-146.
17. **Hsu S.**, Yu FS., Lewis J., Singh B., Borke J., Osaki T., Athar M and Schuster G. (2002) Induction of p57 Is Required for Cell Survival When Exposed to Green Tea Polyphenols. *Anticancer Research*. 22: 4115-4120.
18. **Hsu S.**, Lewis J., Singh B., Schoenlein P., Osaki T., Athar M., Porter AG and Schuster G. (2002). Green Tea Polyphenol Targets the Mitochondria in Tumor Cells Inducing Caspase 3-Dependent Apoptosis. *Anticancer Research*, 23:1533-1540
19. **Hsu S**, Bollag W., Lewis J., Huang Q., Singh B., Sharawy M. and Schuster GS. (2003) Tea Polyphenols Induce Differentiation and Proliferation in Epidermal Keratinocytes. *Journal of Pharmacology and Experimental Therapeutics*, 2003 306: 29-34
20. Yamamoto T, **Hsu S**, Lewis J, Wataha J, Ueta E, Osaki T, Luckwood P, Singh B, Dickinson D, and Schuster G (2003) . Green Tea Polyphenol Causes Differential Oxidative Environments in Tumor versus Normal Cells. *J Pharmacol Exp Ther.* 307:230-6.
21. **Hsu S.**, Singh B., Schuster GS. (2004) Inducing Apoptosis in Oral Cancer Cells. *<Oral Oncology>*. 40: 461-473.
22. **Hsu S**, Yu F, Huang Q, Lewis J, Singh B, Dickinson D, Borke J, Sharawy M, Wataha J, Yamamoto T, Osaki T and Schuster G (2003). A Mechanism-Based *In Vitro* Anticancer Drug Screening Approach for Phenolic Phytochemicals. *ASSAY & Drug Development Technologies*. 1: 611-8.
23. Wataha, JC; Lewis, JB; Lockwood, PE; **Hsu, S**; Messer, R; and Rueggeberg, FR (2004). Blue Light Differentially Modulates Cell Survival and Growth, *J Dent Res*, 83:104-8
24. Yamamoto T, Lewis J, Wataha J, Dickinson D, Singh B, Bollag WB, Ueta E, Osaki T, Athar M, Schuster G, **Hsu S**. (2004). Roles of catalase and hydrogen peroxide in green tea polyphenol-induced chemopreventive effects. *J Pharmacol Exp Ther.* 308:317-23.

25. Lewis, JB; Wataha, JC; Messer, RLW; **Hsu, SD**; Yamamoto, T; and Caughman, G (2004). Blue Light Differentially Alters Cellular Redox Properties, *J Biomed Mater Res*, 2005 Feb 15;72(2):223-9.
26. Yamamoto T, Staples J, Wataha J, Lewis J, Lockwood P, Schoenlein P, Rao S, Osaki T, Dickinson D, Kamatani T, Schuster G. and **Hsu S** (2004). Protective Effects of EGCG on Salivary Gland Cells Treated with  $\gamma$ -radiation or cis-platinum(II)diammine dichloride. *Anticancer Research*. 2004 Sep-Oct;24(5A):3065-73.
27. Lockwood DB, Wataha JC, Lewis JB, Tseng WY, Messer RLW and **Hsu S**. Blue light generates reactive oxygen species (ROS) in epithelial cells. *Dental Materials*, 2005, 21:683-8.
28. Jiang M, Yi X, **Hsu S**, Wang C, Dong Z. Role of p53 in cisplatin-induced tubular cell apoptosis: dependent on p53 transcriptional activity. *American Journal of Physiology*. 2004, Dec;287(6):F1140-7.
29. Walsh D, Borke J, Singh B, Do N, Balagon MV, Abalos RM and **Hsu S**. Psoriasis is characterized by altered epidermal expression of caspase 14, a novel regulator of keratinocyte terminal differentiation and barrier formation. *Journal of Dermatological Science*. 2005 Jan;37(1):61-3.
30. **Hsu S**, Yamamoto T, Borke J, Walsh DS, Singh B, Rao S, Takaaki K, Lapp C, Lapp D, Foster E, Bollag WB, Lewis J, Wataha J, Osaki T and Schuster G. Green tea polyphenol-induced epithelial cell terminal differentiation is associated with coordinated expression of p57/KIP2 and caspase 14. *J Pharmacol Exp Ther*. 2005 Mar;312(3):884-90.
31. **Hsu S**. Green Tea and the Skin. Invited review article for *Journal of the American Academy of Dermatology*. 2005. 52(6):1049-59.
32. **Hsu S**, Farrey K, Lewis J, Wataha J, Borke J, Singh B, Lapp C, Lapp D, Nguyen T, and Schuster G. Possible role of p21<sup>WAF1</sup> in green tea polyphenol-induced growth arrest and apoptosis in oral carcinoma cells. 2005. *Anticancer Research*, 25:63-68.
33. **Hsu S**, Dickinson D, Qin H, Lapp C, Lapp D, Borke J, Walsh DS, Bollag WB, Stoppler H, Yamamoto T, Osakai T and Schuster G. Inhibition of Autoantigen Expression by Epigallocatechin-3-Gallate (the Major Constituent of Green Tea) in Normal Human Cells (2005) *J. Pharmacol. Exp. Ther*. 2005 315: 805-811
34. **Hsu S** and Dickinson D. Green Tea: A New Approach to Managing Oral manifestations of Sjogren's Syndrome and Skin Manifestations of Lupus *Journal of Biochemistry and Molecular Biology*. 2006, 39: 229-39.
35. Rotenberg S, Lewis JB, Lockwood PE, Tseng WY, W Messer RL, **Hsu SD**, Omata Y, Wataha JC. Extracellular environment as one mediator of blue light-induced mitochondrial suppression. *Dent Mater*. 2006 Aug;22(8):759-64
36. Lewis JB, Messer RL, McCloud VV, Lockwood PE, **Hsu SD** and Wataha JC. Ni(II) activates the Nrf2 signaling pathway in human monocytic cells. *Biomaterials*. 2006. Nov;27(31):5348-56. Epub 2006 Jun 27.
37. Omata Y, Lewis JB, Rotenberg S, Lockwood PE, Messer RL, Noda M, **Hsu SD**, Sano H, Wataha JC. Intra- and extracellular reactive oxygen species generated by blue light. *J Biomed Mater Res A*. 2006 Jun 1;77(3):470-7.
38. **Hsu S**, Dickinson D, Qin H, Borke J, Ogbureke K, Walsh D, Bollag WB, Stoppler H, Sharawy M and Schuster G. Protective Effects of Green Tea Polyphenols on Salivary Gland Cells From Autoimmune-Induced Cytotoxicity. 2007. *Autoimmunity*. 40(2):138-47.
39. Yamamoto T, Digumarthi H, Aranbayeva Z, Wataha J, Lewis J, Messer R, Qin H, Dickinson D, Osaki T, Schuster G and **Hsu S**. Role of EGCG-targeted p57/KIP2 in reducing tumorigenicity of oral carcinoma cells and blocking c-jun N-terminal kinase-mediated apoptosis. 2007. *Toxicology and Applied Pharmacology*, *in press*.
40. **Hsu S**, Qin H, Dickinson D, Xie D, Bollag WB, Stöppler H, Pearl H, Vu A, Watkins M,

- Koehler M and Schuster G. Expression of Caspase 14 Reduces Tumorigenicity of Skin Cancer Cells. 2007. *In Vivo*, 21(2):279-83.
41. **Hsu S**, Dickinson D, Borke J, Qin H, Winger J, Henna Pearl, Walsh D, Bollag WB, Wood J, and Schuster G. Green tea polyphenols reduced the psoriasiform lesions and regulate caspase 14 by the mitogen-activated protein kinase pathways. 2007, *Experimental Dermatology*, in press.
  42. Wataha JC, Lewis JB, Lockwood PE, Noda M, Messer RL and **Hsu S**. Response of THP1 Monocytes to Blue Light from Dental Curing Lights. 2007. *Journal of Oral Rehabilitation*. *in press*.

## ABSTRACTS and PRESENTATIONS

1. **Hsu, S.**, Diaz, L. and Lee, H.L. (1985). Studies on the source and role of PIL-DNA on AS-1/ *anacystis nidulans*. New Jersey Branch, American Society of Microbiology, p.3.
2. Lee, H.L., Jou, H., Diaz, J., **Hsu, S.** and Pai, A. (1985). The effect of certain DNA inhibitors on the development of AS-1/ *anacystis indulans*. New Jersey Academy of Science, The Bulletin 30: 49.
3. Lee, H.L., **Hsu, S.**, Diaz, J. and Pai, A. (1985). The origin of PIL-DNA New Jersey Academy of Science, The Bulletin 30: 50.
4. Diaz, J., Jou, H., **Hsu, S.**, Pai, A. and Lee, H.L. (1986). Studies of some characteristics and the role of phage induced light DNA in cyanophage AS-1/ cyanobacterium *anacystis nidulans* infection system. New Jersey Academy of Science, The Bulletin 31: 8.
5. **Hsu, S.**, Davis, B., Cardell, Jr. R.R., Jaspers, S., Miller, T.B. and Drake, R.L. (1989) Appearance of a nonfunctional adult isoform of hepatic glycogen synthase in late gestation. *The Journal of Cell Biology* 109: 4, part 2: 64a.
6. Drake, R.L., **Hsu, S.** and Cardell, Jr. R.R. (1990) Activation of quiescent hepatic glycogen synthase in the postnatal mouse. The American Association of Anatomists 103rd Session.
7. **Hsu, S.** Cardell, Jr. R.R. and Drake, R.L. (1990) Maternal malnutrition and fetal glycogen synthase in late gestation. *The Journal of Cell Biology* 111: 5, part 2: 360a.
8. **Hsu, S.**, Winawer, S. and Friedman, E. (1992) TGFb1 inhibits expression of the retinoblastoma tumor suppresser gene and the nm23 metastasis suppresser gene during growth stimulation of colon carcinoma cells. *Proceedings of the American Association for Cancer Research* 33: 378.
9. Guillen, J., Zeng, Z., Cohen, A., Zhang, Z. and **Hsu, S.** (1993) Elevated nm23 expression in primary colorectal cancer and synchronous liver metastasis. 46th Annual Cancer Symposium: 208.
10. **Hsu, S.**, Huang, F., Hafez, M., Winawer, S. and Friedman (1993) Colon carcinoma cells switch their response to TGFb1 with tumor progression. *The Journal of Cell Biology* 4: 294a.
11. **Hsu, S.** (oral presentation) nm23 plays an important role in TGFb1 mediated colon carcinoma cell adhesion and growth arrest. Tianjin Cancer Institute & Hospital, China, June 24, 1994.
12. **Hsu, S.**, Huang, F., Sauma, S. and Friedman, E. (1994) Phosphorothiolated antisense oligonucleotides to nm23 metastasis suppresser gene block TGFb1 signaling. *Modern Developments in Cancer Therapeutics*, Joint Conference. AACR USA and IBMS Taiwan, Nov. 1994, Taipei, Taiwan.
13. Aiken A, Huynh C, Lewis J, Caughman G, Singh B, Dickinson D, Schuster G., and **Hsu S**. TGF b1 Dysregulation in an Oral Tumor Progression Model. *Journal of Dental Research*. vol. 80 (Special Issue): p176, 2001.
14. **Hsu S**, Huyneh C, Aiken A, Lewis J, CaughmanA G, Singh B, Dickinson D, and Schuster G.

- Green Tea Polyphenols Specifically Induce Apoptosis in Oral Carcinomas 2001, Journal of Dental Research. vol. 80 (Special Issue): p175, 2001.
15. **Hsu S.**, Lewis J., Singh B., Dickinson D., Borke, J., Caughman G., Drake, L., Rhoel B., and chuster G. Chemopreventive Effects of Green Tea Polyphenols Differentially Activate Survival/Apoptosis Pathways in Human Normal and Malignant Epithelial Cells. Abstract 0216. AADR Annual Meeting, San Diego, CA, 2002.
  16. **Hsu S.**, Lewis J., Singh B., Borke J, Chuo F, Choe Y and Schuster G. Monitoring Apoptosis of Oral Cancer Cells Adjacent to Normal Cells. Abstract # 0511. Oral presentation at AADR annual meeting, San Antonio, TX. March, 2003.
  17. Chuo F, Choe Y, Wataha J, Lewis J, Hsu S, and Schuster G, Apoptotic Status in Response to Green Tea Polyphenols in p57/KIP2 Expressing Oral Carcinoma Cells. Abstract #0393, AADR annual meeting, San Antonio, TX. March, 2003.
  18. Yamamoto T., Staples J., Wataha J., Lewis J., Lockwood P., Schoenlein P., Rao S., Schuster G. and **Hsu S.** Protection of Salivary Gland Cells against Xerostomia by Green Tea. Abstract 1616. AADR Annual Meeting, Honolulu, HI. March, 2004.
  19. Lapp C, Hsu S, Yamamoto T, and Lapp D, 2507 Macroarray analysis of tea polyphenol-treated normal versus malignant epithelial cells. Abstract #2507, AADR Annual Meeting, Honolulu, HI. March, 2004.
  20. **Hsu S**, Rao S, Yamamoto T, Lapp C, Borke J, Singh B, Walsh D, Nguyen T, Schuster G, Lapp D. Chemopreventive effects of green tea polyphenol is associated with caspase 14 induction in epidermal keratinocytes. Abstract# 2218, AACR Annual Meeting, Orlando, FL. March, 2004.
  21. **Hsu S.** (Organizer and Section Chair) Gene array-mediated identification of EGCG-induced differential pathways in normal epithelial and oral carcinoma cells. The first Japanese-Chinese-American Kochi-Symposium: The front line of cancer therapy and infection control. Sept. 4, 2004. Kochi, Japan.
  22. **Hsu S** et al. Green Tea Polyphenol Creates Differential Microenvironments by Inverse Regulating Gene Expressions in Tumor vs. Normal Cells. The Third International Conference on "Tumor microenvironment: progression, therapy and prevention". Prague, Czech Republic, October 12-16, 2004
  23. Aranbayeva Z, Digumarthi H, Yamamoto T, Singh B, Schuster G.S., and **Hsu S.** Role of c-Jun N-terminal kinase in oral cancer tumorigenesis. AADR Annual Meeting, Baltimore, MD. March, 2005.
  24. Digumarthi H, Aranbayeva Z, Yamamoto T, Singh B, Schuster G.S., and **Hsu S.** Expression of p57 reduced tumorigenicity of oral squamous carcinoma cells AADR Annual Meeting, Baltimore, MD. March, 2005.
  25. **Stephen D. Hsu**, Hari Digumarthi, Zina Aranbayeva, Kajuana Farrey, Haiyan Qin, Baldev Singh, James Borke, Tuan Nguyen, Carol Lapp, David Lapp, and George S. Schuster. Reduction of tumorigenicity of oral carcinoma cells by regulation of green tea polyphenol-targeted genes. Proceedings of the American Association for Cancer Research, 46:1230, 2005.
  26. **Stephen Hsu**, Carol Lapp, Haiyan Qin, Wendy Bollag, Hubert Stoppler, Douglas Walsh, James Borke, Baldev Singh, George Schuster and David Lapp. Inhibition of Sjogren's syndrome-related gene expression by a major tea catechin. Annual meeting of the Arthritis Foundation, June, 2005. Atlanta.
  27. **Stephen Hsu**, Inhibition of autoantigen expression by a major tea catechin International Workshop on Gene Expression and Apoptosis-Associated Signal Transduction in Cancer cells. Kochi University, Japan. August 20th, 2005.
  28. Invited presentation, Beneficial effects of green tea: from laboratory research to daily products. KAO Corporation, Tokyo, Japan, August 24, 2005.

31. Invited special lecturer, Ajou University Medical Center, Suwon, Korea, August 31<sup>st</sup>, 2005.
30. Invited presentation, Inhibition of Sjogren's Syndrome-Related Gene Expression by a Major Tea Catechin Research Institute of Pharmaceutical Sciences Seoul National University, Korea. Sept, 1<sup>st</sup>, 2005.
32. Invited presentation, Green Tea Polyphenols and Skin Homeostasis, AmorePacific Company, Suwon, Korea. Sept 2, 2005.
28. Invited presentation, Green Tea and Sjogren's Syndrome. Zhejiang University, School of Stomatology, Hangzhou, China, Sept 8, 2005.
29. Special lecture, Lipid metabolism. Zhejiang University, School of Medicine, Hangzhou, China, Sept 9, 2005.
30. Rotenberg S, Wataha JC, Lewis JB, Messer RLW, Lockwood PE, McCloud VV, **Hsu SD**. Extracellular environment modulates blue light-induced tumor cell damage. Israeli Society of Prosthodontics, Annual Meeting, May 2006
31. **Hsu, S**, Dichinson, D.P., Qin, H., Borke, J.L., Ogbureke, K., Sharawy, M., Camba, A, Podolsky, R., and Schuster, G.S. Protective role of green tea in Sjogren's Syndrome animal models. AADR Annual meeting, March 8, 2006. Orlando.
32. Invited presentation, Green Tea Catechins and the Skin, Japanese Catechin Society. Tokyo, Japan. June 6, 2006.
33. Invited Speaker, Green Tea and Oral Health, 21<sup>st</sup> Annual Symposium on General Dentistry, St. Simons Island, GA. July 4, 2006.
34. Invited Speaker, Nutrition, Myths, Facts, and the Aging Population, 21<sup>st</sup> Annual Symposium on General Dentistry. St. Simons Island, GA. July 5, 2006.
35. Invited presentation, The 6<sup>th</sup> International Conference on Phytochemicals, Pomona, CA. Oct 16, 2006.
36. Vu A, Watkins M, Xie D, Bollag W, Qin H and Hsu S. Expression of green tea-targeted caspase 14 altered tumor cell behavior. AADR annual meeting, New Orleans, LA. 2007.
37. Watkins M, Vu A, Xie D, Bollag W, Qin H and Hsu S. Transfection of Caspase 14 into Cancer Cells Induced Cell Death. AADR annual meeting, New Orleans, LA. 2007.
38. Farrey K, Qin H, Schuster G and Hsu S. Effects of EGCG in Human Salivary Gland Cancer Cells. AADR annual meeting, New Orleans, LA. 2007.
39. Suzanna Aguilera, Daniel C.N. Chan, Mahmood Mozaffari, and **Stephen Hsu**. The Effect of Antioxidants on Minocycline-Induced Pigment Formation. AADR annual meeting, New Orleans, LA. 2007.
40. Oral presentation: Hsu S, Borke J, Walsh DS, Wood J, Qin H, Winger J, Pearl H, Schuster G and Bollag WB. Green tea polyphenols reduced psoriasiform lesions in a mouse model for human psoriasis in association with caspase 14 activation. SID Annual meeting, Los Angeles, CA, May 12, 2007.

## RESEARCH PROJECTS:

### Ongoing Projects:

1. A Pilot Study on the Effect of Green Tea Using the NOD Mouse Model.

MCGRI 08/31/06 – 08/31/07

PI: Stephen Hsu

20% effort

The goal of the current proposal is to investigate the correlation between oral application of GTPs at an early stage (week #4) and reduced destruction of salivary tissues by SS in a mouse SS model NOD (Non-obese diabetic).

### Completed Project:

1. Identification of Green Tea Polyphenol-Targeted Genes.

R21. NCI/NIDCR 06/4/03-05/31/06

PI: Stephen Hsu.

20% effort

The goal of this proposal is to identify the survival or apoptotic genes that are regulated by green tea polyphenols.

2. The mechanism of apoptosis evasion of squamous cell carcinoma cells in the hypoxic condition.

Grant-in-Aid for Scientific Research No.16390538 (Japan) 4/1/04-3/31/06

PI: Tetsuya Yamamoto

3. Altered TGF beta1 Regulation in Oral Carcinoma Cells. Medical College of Georgia Research Institute.

PI: Stephen Hsu. 99-00. The major goal of this project was to elucidate the mechanism(s) of altered TGF beta1 regulation in oral carcinoma tumor progression based on a human oral cancer progression model. The PI was responsible for designing the experiments, coordinating the research activities in different Laboratories, data analysis and writing manuscript.

4. Green Tea Polyphenol-Induced p57 Expression in Relation with Gas-1, PCNA and Apoptosis in Oral Carcinoma and Normal Epithelial Cells.

Dental Research Foundation. Medical College of Georgia.

PI: Stephen Hsu. Co-Investigators: Baldev Singh, Jill Lewis and James Borke. 02-03.

The major goals of this project are to determine the relationship between p57 induction and the expression of Growth Arrest Specific Protein 1 (Gas 1) and Proliferating Cell Nuclear Antigen (PCNA) in normal human keratinocytes, and to profile the apoptosis and cell cycle status in EGCG treated OSC2 cells on protein levels.

Grants pending:

1. Role of Green Tea-Induced Caspase 14 in the Skin R21 NIH

PI: Stephen Hsu

01/01/07-12/31/09

20% effort

The goal of this proposal is to determine the role of caspase 14 in EGCG-induced cell differentiation and epidermal cell death using both *in vitro* and *in vivo* models.

2 Green tea polyphenols: a novel approach to modulating Sjogren's Syndrome

NIH/NIDCR

09/01/06 – 08/31/10

PI: Stephen Hsu

25% effort

Co-Is: Douglas Dickinson, James Borke, Robert Podolsky.

The goal of this proposed study is investigate the correlation of GTPs oral application and destruction of salivary tissues by SS and determine the molecular pathway and mechanism activated by GTPs to suppress autoantigen expression, apoptosis and inflammation.

**TEACHING**

Nutrition: Course Director.

Biochemistry: Lipid metabolism.

Bioclinical Seminar

Craniofacial Development

**REVIEWER FOR PEER-REVIEWED JOURNALS**

Carcinogenesis

European Journal of Clinical Nutrition  
 Journal of Pharmacology and Therapeutics  
 Journal of Pharmacology and Experimental Therapeutics  
 Oral Oncology  
 Oncogene  
 Journal of Clinical Investigation  
 Pharmacological Research  
 Nutrition and Cancer  
 FASEB Journal  
 BMC Cell Biology  
 IUBMB Life  
 Journal of Rheumatology  
 Apoptosis  
 Journal of Oral Sciences  
 British Journal of Dermatology

### **MEMBER/STUDY SECTION/EDITORIAL BOARD**

NIH Special Emphasis Panel ZRG1 CDP (01), 2005  
 National University of Singapore Academic Research Fund Research Grant, 2005.  
 Philip Morris External Research Program, 2005, 2006, 2007.  
 NIH Arthritis, Connective Tissue and Skin (ACTS) Study Section, 2007.  
 VA Medical Center Research and Development Proposal Review Subcommittee, 2007.

### **U.S. Patents and Inventions**

1. Chemopreventive and therapeutic aspects of polyphenolic compounds and assays. June, 2004
2. Cosmetic Compositions Comprising Green Tea Polyphenols. Provisional patent application filed (CCA). 2005
3. Prevention and Treatment of Psoriasis by Green Tea Polyphenols. Provisional patent filed. 2006. MCG 027-06
- 4 Detergents formulated with green tea polyphenols . Provisional patent application filed 2005. Utility patent filed 2006. MCG 002-06.
- 5 Effects of Green Tea Polyphenols on Autoimmune Disorders: A Novel Approach Involving Inhibition of Autoantigens Expression, Inflammation and Apoptosis, filed 2005. MCG 019-05.
6. Topical Genetic Approach Against Cutaneous Neoplasm or Disorders by Expressing Wild Type p57 and/or Caspase 14 Genes. Provisional patent application filed 2007. MCG 028-07.
- 7 Mega-T green tea chewing gum and mints, 2004, 2006. Available in U.S. and Canada mass market.
- 8 Sudden Change Intensive skin care lines, 2006. Available in U.S. and Canada mass market.
9. Scar Zone and Scar Zone A, 2006. Available in U.S. and Canada mass market.