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MAJOR RESEARCH INTERESTS

My laboratory has been working on the STAT signalling pathway since its original discovery. We have shown in the past that the STAT pathway controls most critical steps during cell differentiation, cell cycle and apoptosis, immune/inflammatory responses and body metabolism/homeostasis. Currently, we are focusing on the following major new directions:

- a) Molecular mechanisms of STAT3 in regulation of tumorigenesis, metastasis and angiogenesis.
- b) The key functions of STAT proteins in epigenetic regulation of development and diseases.
- c) The regulatory mechanisms of cytokines in innate immunity and adaptive immunity.
- d) Reprogramming mechanisms during development and generation of stem cells.

SIX REPRESENTATIVE PUBLICATIONS

1. Moh A, Zhang W, Wang Z, Yu S and **Fu X-Y** (2008) STAT3 sensitizes insulin signalling by negatively regulating GSK-3 β . *Diabetes*. In press.
2. Rong Y, Cheng L, Chang Z and **Fu X-Y**. (2006) WT1 and STAT3 synergistically promote cell proliferation: A possible mechanism in sporadic Wilms' tumor. *Cancer Research*. 66(16): 8049-8057.
3. Welte T, Zhang SS, Wang T, Zhang Z Yin, Zhinan Kano A, Hesslein D, Iwamoto Y, Panelakis K, Bothwell A M, Craft JE, Fikrig E, Flavell E A, **Fu X-Y**. (2003) STAT3 Deletion During Hematopoiesis Causes Crohn's Disease-Like Pathogenesis and Lethality, Revealing a Role of STAT3 in Regulation of Innate Immunity. *Proc. Natl. Acad. Sci. USA*. 100: 1879-1884.
4. Welte T, Leitenberg D, Dittel B N al-Ramadi, B K Xie B, Chin Y E, Janeway Jr, C A, Alfred LM Bothwell, Bottomly K and **Fu X-Y**. (1999) STAT5 Interaction with the T-Cell Receptor Complex and Stimulation of T-Cell Proliferation. *Science*. 283: 222-225.
5. Su W.-C. S, Kitagawa M, Xue N, Xie B, Garofalo S, Cho J, Deng C, Horton W A and **Fu X-Y**. (1997) STAT1 Activation Induced by Mutant FGFR3 in Thanatophoric Dysplasia Type II dwarfism. *Nature*. 386: 288-292.
6. Chin E Y, Kitagawa M, Su W S, You Z-H, Iwamoto Y and **Fu X-Y**. (1996) Cell Growth Arrest and Induction of Cyclin Dependent Kinase Inhibitor p21WAF1/CIP1 Mediated by STAT1. *Science*. 272: 719-722.