

Curriculum vitae

HASHMAT A. SIKDER, PH.D.

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Current status:

Research Fellow in the Department of Dermatology, School of Medicine, University of Maryland at Baltimore.

Education:

Ph.D. in Molecular Biology from Kyushu University, Fukuoka, Japan (1997).

M.S. in Biochemistry from Dhaka University, Dhaka, Bangladesh (1990).

B.S. in Biochemistry from Dhaka University, Dhaka, Bangladesh (1988).

Research experience:

2006 - Present: I am currently working on two independent research projects.

One of them is on skin cancer Basal Cell Carcinoma (BCC). BCC causes local invasion and tissue destruction. In general, tumor invasiveness is facilitated by a group of extracellular matrix (ECM) proteins. The overall goal of this project is to find out whether the invasive nature of the BCC is connected with the expression of any ECM protein that promotes local invasion and whether we can selectively target such a gene to inhibit the growth and invasion of BCC.

My other project is on an immune disease named psoriasis (and today's talk is based on findings from this project). Psoriasis is a lifelong skin disease that affects 1% to 3% of the world's population. In psoriatic patients, a protein named Cd1d is over-expressed in skin cell keratinocytes when compared to non-psoriatic cells. Cd1d over-expression causes over-activation of certain T cells named NKT cells and this activation is believed to be an earliest step in psoriasis pathogenesis. The reason for CD1d over-expression is not well understood and my goal is to determine the factors that control the CD1d expression in keratinocytes.

2004 - 2005: Postdoctoral Research Fellow in **Environmental Health Sciences**, Johns Hopkins School of Public Health at Johns Hopkins Medical Institutions, Baltimore, Maryland. I investigated the role of human bronchial epithelial cells in antigen presentation and regulation of the recall response of CD4+ memory T cells.

2003 - 2004: Postdoctoral research fellow in **Clinical Immunology**, Johns Hopkins Asthma and Allergy Center, Baltimore. I worked in a project to test the role of several B7 homologs (a sub-family of T cell costimulatory molecules) and Toll like receptors (a family of immune effector molecules), in the pathogenesis and exacerbation of asthma and allergy, especially in the chronic rhinosinusitis (CRS).

2001 - 2003: Postdoctoral research fellow in **Cutaneous Oncology**, Johns Hopkins Oncology Center, Baltimore. I investigated the role of the helix-loop-helix transcription factor Id1 on wound healing and skin tumorigenesis.

1998 - 2001: Postdoctoral research fellow in **Experimental Hematopoiesis** Lab, Johns Hopkins Oncology Center, Baltimore. I investigated cell cycle regulation in an early hematopoietic stem cell (HSC) population that gives rise to different mature blood cells.

1997 - 1998: Postdoctoral research fellow in **Radiation Oncology** Division, Johns Hopkins Oncology Center, Baltimore. Using yeast *s. cerevisiae*, I investigated in vivo function of a gene named OGG1 that encodes a DNA glycosylase and repairs oxidized guanines in DNA.

1993 - 1997: Ph.D. student in the Department of **Molecular Biology**, Graduate School of Medical Science, Kyushu University, Japan. I investigated the role of cyclin A, a key regulatory cell cycle protein during mitosis.

1991 - 1993: Research student in the Department of **Molecular Biology**, Kyushu University, Japan. I worked on the structure-function relationship of cyclin A by constructing a library of cyclin A mutant proteins through site-directed mutagenesis.

Special honors received:

1. Japanese Government Scholarship for International Graduate Students (1993-1996).
2. Japanese Government Scholarship for International Research Students (1991-1993).

Publications:

1. **Sikder H**, Zhao Y, Fischelevich R and Gaspari AA. CD1d transcriptional regulation in human keratinocyte and other epithelial cell lines. Manuscript under preparation.
2. **Sikder H**, Fischelevich R, Gaspari AA and Kouba DJ. The green tea polyphenol epigallocatechin-3 gallate (EGCG) inhibits expression of the Sonic hedgehog-related oncogene Gli1 in epidermal keratinocytes. Manuscript under preparation.
3. **Sikder H**, Fischelevich R, Gaspari AA and Kouba DJ. The role and regulation of extracellular matrix protein tenascin-C (TNC) in basal cell carcinoma. Manuscript under preparation.
4. Kim J, **Sikder H**, Schleimer RP. Constitutive and inducible expression of B7 family of costimulatory molecules by human airway epithelial cells. 2008. Manuscript submitted and under review.
5. **Sikder H**, Huso DL, Zhang H, Wang B, Ryu B, Hwang ST, Powell JD and Alani RM. Disruption of Id1 reveals major differences in angiogenesis between transplanted and autochthonous tumors. *Cancer Cell* (2003), 4(4): 291-299.
6. **Sikder H**, Devlin MK, Dunlap S, Ryu B, Alani RM. Id proteins in cell growth and tumorigenesis. *Cancer Cell* (2003), 3(6): 525-30.

7. Volpert OV, Pili R, **Sikder H**, Zaichuk T, Morris C, Shiflett CB and Alani RM. Id1 regulates angiogenesis through transcriptional repression of thrombospondin-1. Cancer Cell (2002), 2(6): 473-83.
8. Kim G, **Sikder H**, Singh KK. A colony color method identifies the vulnerability of mitochondria to oxidative damage. Mutagenesis (2002), 17(5): 375-81.
9. Singh KK, Sigala B, **Sikder H** and Schwimmer C. Inactivation of *Saccharomyces cerevisiae* *OGG1* DNA repair gene leads to an increased frequency of mitochondrial mutants. Nucleic Acids Research (2001), 29(6): 1381-8.
10. **Sikder H**, Neutzel S, Collector M and Sharkis SJ. Cell cycle analysis in an early hematopoietic stem cell. Blood (1999), 94(10) suppl 1: 269a. (Abstract).
11. **Sikder H**, Funakoshi M, Nishimoto T and Kobayashi H. An altered nuclear migration into the daughter bud is induced by the cyclin A1-mediated Cdc28 kinase through an aberrant spindle movement in *Saccharomyces cerevisiae*. Cell Structure and Function (1997), 22(4): 465-76.
12. Funakoshi M, **Sikder H**, Ebihara H, Irie K, Sugimoto K, Matsumoto K, Hunt T, Nishimoto T and Kobayashi H. *Xenopus* cyclin A1 can associate with Cdc28 in budding yeast, causing cell-cycle arrest with an abnormal distribution of nuclear DNA. Genes to Cells (1997), 2(5): 329-43.

Presentations:

1. **Sikder H**, Fischelevich R, Zhao Y and Gaspari AA. CD1d transcriptional regulation in human keratinocyte and other cell lines. Immunology and Immunopathology Interest Group seminar at University of Maryland Bio-Park. February 6, 2008. Baltimore, USA.
2. **Sikder H**, Fischelevich R, Gaspari AA and Kouba DJ. The role and regulation of extracellular matrix protein tenascin-C (TNC) in basal cell carcinoma. 68th Annual Meeting of Society for Investigative Dermatology. May 9-12, 2007. Los Angeles, USA.
3. **Sikder H**, Huso D, Powell JD, Devlin M and Alani RM. Increased skin tumorigenesis in Id1-null mice due to defects in immune surveillance. Fellow Research Day at Johns Hopkins Cancer Center. April 17, 2003. Baltimore, USA.
4. **Sikder H**. Altered skin tumorigenesis in Id1-null mice. Tumor Biology Meeting at Johns Hopkins Cancer Center. November 15, 2002. Baltimore, USA.
5. **Sikder H**, Neutzel S, Collector M and Sharkis SJ. Cell cycle analysis in an early hematopoietic stem cell. 41st Annual Meeting of American Society of Hematology. December 3-7, 1999. New Orleans, USA.
6. **Sikder H**, Collector M and Sharkis SJ. Cell cycle analysis in an early hematopoietic stem cell. Fellow Research Day at Johns Hopkins Cancer Center. June 15, 1999. Baltimore, USA.
7. **Sikder H**, Funakoshi M, Mano D, Nishimoto T, and Kobayashi H. *Xenopus* cyclin A1-mediated Cdc28 kinase causes cell-cycle arrest, with a novel nuclear movement into the daughter bud in *Saccharomyces cerevisiae*. 20th Annual Meeting of Molecular Biology Society of Japan. December 16-19, 1997. Kyoto, Japan.
8. **Sikder H**, Funakoshi M, Nishimoto T and Kobayashi H. Abnormal distribution of nuclear DNA induced by cyclin A in the daughter bud. 14th Cell Cycle Workshop. February 2-5, 1997. Kobe, Japan.
9. Funakoshi M, **Sikder H**, Irie K, Matsumoto K, Hunt T, Nishimoto T and Kobayashi H. Cdc28 mutation that restores the cyclin A1-mediated growth arrest in *Saccharomyces cerevisiae*. 19th Annual Meeting of Molecular Biology Society of Japan. August 26-30, 1996. Sapporo, Japan.
10. Funakoshi M, **Sikder H**, Matsumoto K, Hunt T, Nishimoto T and Kobayashi H. A new CDC28 mutation that allows re-replication in the absence of mitosis. Cold Spring Harbor Meetings, "The cell cycle". May 15-19, 1996. Cold Spring Harbor, USA.
11. Kobayashi H, Funakoshi M, **Sikder H**, Irie K, Matsumoto K, Hunt T and Nishimoto T. *Xenopus* cyclin A associates with CDC28 and perturbs S phase progression in the budding yeast, *Saccharomyces cerevisiae*. Keystone Symposia. "The cell cycle". January 11-17, 1996. Taos, USA.
12. Funakoshi M, **Sikder H**, Irie K, Matsumoto K, Hunt T, Nishimoto T and Kobayashi H. Isolation of the suppressors that complement the growth inhibition caused by expression of *Xenopus* cyclin A in budding yeast. 18th Annual Meeting of Molecular Biology Society of Japan. December 6-9, 1995. Nagoya, Japan.
13. **Sikder H**, Funakoshi M, Ebihara H, Irie K, Matsumoto K, Hunt T, Nishimoto T and Kobayashi H. Association of *Xenopus* cyclin A with Cdc28 induces cell cycle arrest at S phase in *Saccharomyces cerevisiae*. C.N.R.S.-J.Monod Conference. "The cell division cycle". May 14-18, 1995. Aussois, France.
14. **Sikder H**, Ebihara H, Nishizono M, Irie K, Matsumoto K, Hunt T, Irie K, Matsumoto K, Hunt T, Nishimoto T and Kobayashi H. Overexpression of *Xenopus* cyclin A in budding yeast causes cell cycle arrest. 17th Annual Meeting of Molecular Biology Society of Japan. December 13-16, 1994. Kobe, Japan.
15. **Sikder H**, Ebihara H, Nishizono M, Irie K, Matsumoto K, Stewart E, Hunt T and Kobayashi H. Overexpression of *Xenopus* cyclin A in yeast causes cell cycle arrest. The second UK-Japan cell cycle workshop. September 17-20, 1994. Cambridge, U.K.
16. Kobayashi H, **Sikder H**, Nishimoto T, Stewart E and Hunt T. Analysis of destruction domain in *Xenopus* cyclins A and B. 16th Annual Meeting of Molecular Biology Society of Japan. December 16-19, 1993. Kyoto, Japan.