Hardik Patel

Lab Phone

646-888-2238

As a trained medicinal chemist with a background in the field of pharmacy, my objective is to utilize knowledge gained over the years towards the development of novel anticancer therapeutics in the treatment of breast cancer. At Memorial Sloan Kettering Cancer Center, I am pursuing a career as a research scientist with a broad understanding in the development of novel therapeutic approaches against cancer. My research in Dr. Chiosis laboratory is largely focused in the development of small molecule inhibitors of heat shock proteins that are responsible for chaperoning of client proteins involved in the pathogenesis of cancer and potentially other diseases.

Primarily, I have been working on the development of selective Grp94 (ER paralog of Hsp90) inhibitors for the treatment of breast cancer. In this regard, my research has focused on the design and synthesis of small-molecule inhibitors and chemical tools useful for detailed biological studies. Efforts thus far have resulted in the discovery and optimization of small molecule Grp94 inhibitors that we find occupy a novel allosteric binding site in Grp94, which was first identified by our lab in collaboration with the Dr. Gewirth lab at Hauptman-Woodward Medical Research Institute. These molecules are currently undergoing mechanistic and efficacy evaluation in pre-clinical models of breast cancer. I have also synthesized several chemical biology tools that have been instrumental in elucidating novel mechanisms associated with Grp94 in HER2-overexpressing breast cancer.

My secondary research project involves design and synthesis of a library of small molecule inhibitors of Hsp70, which like Hsp90 is characterized by high expression in tumor cells, and thus allowing the tumor to continue to thrive. These molecules are currently undergoing extensive pre-clinical evaluation as novel anticancer therapeutic agents. In this regard, I am actively involved in the numerous *in vitro* assays (microsomal stability, CYP inhibition, HERG inhibition and PAMPA) and *in vivo* evaluations (PK/PD analyses of drug action, preclinical toxicology and evaluation of drug efficacy in several breast tumor models) intended to evaluate the potential of these molecules as a drug.

Current Position
Pharmacist

Publications

Selected Publications

Rodina A, Wang T, Yan P, Gomes ED, Dunphy MP, Pillarsetty N, Koren J, Gerecitano JF, Taldone T, Zong H, Caldas-Lopes E, Alpaugh M, Corben A, Riolo M, Beattie B, Pressl C, Peter RI, Xu C, Trondl R, Patel HJ, Shimizu F, Bolaender A, Yang C, Panchal P, Farooq MF, Kishinevsky S, Modi S, Lin O, Chu F, Patil S, Erdjument-Bromage H, Zanzonico P, Hudis C, Studer L, Roboz GJ, Cesarman E, Cerchietti L, Levine R, Melnick A, Larson SM, Lewis JS, Guzman ML, Chiosis G. The epichaperome is an integrated chaperome network that facilitates tumour survival. Nature. 2016;538(7625):397-401. PubMed PMID: 27706135; PMCID: PMC5283383. Altmetric 439

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Taldone T, Kang Y, Patel HJ, Patel MR, Patel PD, Rodina A, Patel Y, Gozman A, Maharaj R, Clement CC, Lu A, Young JC, Chiosis G. Heat shock protein 70 inhibitors. 2. 2,5'-thiodipyrimidines, 5-(phenylthio)pyrimidines, 2-(pyridin-3-ylthio)pyrimidines, and 3-(phenylthio)pyridines as reversible binders to an allosteric site on heat shock protein 70. J Med Chem. 2014;57(4):1208-24. PubMed PMID: 24548239; PMCID: PMC3983364.
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Patel, P. D.; Yan, P.; Seidler, P. M.; Patel, H. J.(co-first author); Sun, W.; Yang, C.; Que, N. S.; Taldone, T.; Finotti, P.; Stephani, R. A.; Gewirth, D. T.; Chiosis, G. Paralog-selective Hsp90 inhibitors define tumor-specific regulation of HER2. *Nat. Chem. Biol.*, 2013, 9 (11), 677-684. (Highlighted in Cancer Discovery's Research Watch, Oct. 2013; Highlighted by SciBX: Science-Business eXchange, Oct. 2013; Highlighted by StressMarq Biosciences Inc., Oct. 2013)
Taldone T, Zatorska D, Patel HJ, Sun W, Patel MR, Chiosis G. Preparation of a diverse purine-scaffold library via one-step palladium catalyzed cross-coupling. Heterocycles. 2013;87(1):91-113.
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series of 1,3,6-trisubstituted-2-carboxy-quinol-4-ones controls infection associated preterm birth. *Am. J. Pathol.* 2010, 177 (4), 1929-35.
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