

CURRICULUM VITAE

NAME: Piotr G. Rychahou, MD, MMS.

July 27, 2009

PRESENT POSITION AND ADDRESS:

Assistant Professor
Department of Surgery
741 S. Limestone BBSRB; Office B371
Lexington, KY 40536-0509
Telephone: (859) 323-3227

BIOGRAPHICAL:

Born: 17 June 1978, Leninabad, Tajikistan
Citizenship: Belarus

EDUCATION:

Graduate:

1996-2002 Cum Laude Graduate, Byelorussian State Medical University, **M.D.**
Minsk, Belarus

2006- 2007 Master of Medical Science, University of Texas Medical Branch at
Galveston, Texas

Postgraduate Training:

2002-2008 Research Fellow
The University of Texas Medical Branch at Galveston, Texas

2008-2009 Instructor
The University of Texas Medical Branch at Galveston, Texas

2009-present Assistant Professor, The University of Kentucky, Kentucky

RESEARCH ACTIVITIES:

Area of Research

Areas of research interests are to elucidate the role of PI3K/Akt pathway components in colorectal carcinoma oncogenesis.

ADDITIONAL INFORMATION:

Patents/Inventions

U.S. Patent Application 0771CG.000050 filed March 22, 2004. Evers BM, **Rychahou P.**
SiRNA Targeting a PI3K Signal Transduction Pathway and Method of Treating
Inflammatory Disease Using SiRNA Thereof.

U.S. Patent Application 265.00490160 filed May 2006. Evers BM, **Rychahou P**. Methods and Compositions for Treating Cancer.

PUBLICATIONS:

• **ARTICLES IN PEER-REVIEWED JOURNALS:**

1. Farrow B, **Rychahou PG**, Murillo C, O'Connor KL, Iwamura, T, Evers BM. Inhibition of pancreatic cancer cell growth and induction of apoptosis with novel therapies directed against protein kinase A. *Surgery* 134:197-205, 2003.
2. Farrow B, **Rychahou PG**, O'Connor KL, Evers BM. Butyrate inhibits pancreatic cancer invasion. *Journal of Gastrointestinal Surgery* 7:864-870, 2003.
3. Murillo CA, **Rychahou PG**, Evers BM. Inhibition of $\alpha 5$ integrin decreases PI3K activation and cell adhesion of human colon cancers. *Surgery* 136:143-149, 2004.
4. Watanabe H, Saito H, **Rychahou PG**, Uchida T, & Evers BM. Aging Is Associated With Decreased Pancreatic Acinar Cell Regeneration and Phosphatidylinositol 3-Kinase/Akt Activation. *Gastroenterology* 128(5): 1391-1404, 2005.
5. Naoum JJ, Woodside KJ, Zhang S, **Rychahou PG**, & Hunter GC. Effects of Rapamycin on the Arterial Inflammatory Response in Atherosclerotic Plaques in Apo-E Knockout Mice. *Transplantation Proceedings* 37(4): 1880-1884, 2005
6. Chen AL, Soman KV, **Rychahou PG**, Luxon BA, Evers BM. Proteomic analysis of colonic myofibroblasts and effect on colon cancer cell proliferation. *Surgery* 138:382-390, 2005.
7. **Rychahou PG**, Murillo CA, Evers BM. Targeted RNA interference of PI3K pathway components sensitizes colon cancer cells to TNF-related apoptosis-inducing ligand (TRAIL). *Surgery* 138:391-397, 2005.
8. Zhang W, Chen X, Kato Y, Evans PM, Yuan S, Yang J, **Rychahou PG**, Yang VW, He X, Evers BM, Liu C. Novel cross talk of Krüppel-like factor 4 and β -catenin regulates normal intestinal homeostasis and tumor repression. *Molecular and Cellular Biology* 26:2055-2064, 2006.
9. **Rychahou PG**, Jackson LN, Silva SR, Rajaraman S, Evers BM. Targeted molecular therapy of the PI3K pathway: therapeutic significance of PI3K subunit targeting in colorectal carcinoma. *Annals of Surgery* 243:833-842, 2006.
10. Kang J, **Rychahou PG**, Ishola TA, Qiao J, Evers BM, Chung DH. MYCN silencing induces differentiation and apoptosis in human neuroblastomas cells. *Biochemical and Biophysical Research Communications* 351:192-7, 2006.
11. Kang J, Ishola TA, Baregamian N, Mouroto JM, **Rychahou PG**, Evers BM, Chung DH.

Bombesin induces angiogenesis and neuroblastoma growth. *Cancer Letters* 253:273-281, 2007.

12. Larson SD, Jackson LN, Chen AL, **Rychahou PG**, Evers BM. Effectiveness of siRNA uptake in target tissues by various delivery methods. *Surgery* 142:262-269, 2007.
13. Baregamian N, **Rychahou PG**, Evers BM, Chung DH. Phosphatidylinositol 3-kinase pathway regulates hypoxia-inducible factor-1 to protect from intestinal injury during necrotizing enterocolitis. *Surgery* 142:295-302, 2007.
14. Shen X, **Rychahou PG**, Evers BM, Falzon M. PTHrP increases xenograft growth and promotes integrin $\alpha 6\beta 4$ expression and Akt activation in colon cancer. *Cancer Letters* 258:241-252, 2007.
15. Kang J, **Rychahou PG**., Ishola TA, Mourot JM, Evers BM, and Chung DH. (2008). N-myc is a novel regulator of PI3K-mediated VEGF expression in neuroblastoma. *Oncogene* 27, 3999-4007.
16. Jackson LN, Larson SD, Silva SR, **Rychahou PG**, Chen LA, Qiu S, Rajaraman S, Evers BM. (2008). PI3K/Akt activation is critical for early hepatic regeneration after partial hepatectomy. *Am J Physiol Gastrointest Liver Physiol* 294, G1401-1410.
17. Qiao J, Kang J, Ishola TA, **Rychahou PG**, Evers BM, Chung DH. Gastrin-releasing peptide receptor silencing suppresses the tumorigenesis and metastatic potential of neuroblastoma. *Proceedings of the National Academy of Sciences* 2008;105:12891-6..
18. **Rychahou PG**., Kang J, Gulhati P, Doan HQ, Chen LA, Xiao SY, Chung DH, Evers BM. (2008). Akt2 overexpression plays a critical role in the establishment of colorectal cancer metastasis. *Proceedings of the National Academy of Sciences* 105(51): 20315-20320
19. Liu J, Weiss HL, **Rychahou PG**, Jackson LN, Evers BM, Gao T. Loss of PHLPP expression in colon cancer: role in proliferation and tumorigenesis. *Oncogene* 2008;28:994-1004.
20. Wu Y, Deng J, **Rychahou PG**, Qiu S, Evers BM, Zhou BP. Stabilization of Snail by NF-[kappa]B Is Required for Inflammation-Induced Cell Migration and Invasion. *Cancer Cell* 2009;15:416-28.

- **REVIEW ARTICLES:**

1. **Rychahou PG**, Jackson LN, Farrow BJ, Evers BM. RNA interference: mechanisms of action and therapeutic consideration. *Surgery* 140:719-725, 2006.

- **PUBLICATIONS - IN PRESS:**

- **PUBLICATIONS - SUBMITTED:**

ABSTRACTS:

1. Farrow B, **Rychahou P**, Evers BM. Inhibition of Ras restores E-cadherin expression in pancreatic cancer cells. *Proceedings of the American Association for Cancer Research* 44:667, 2003.
2. Farrow B, O'Connor KL, **Rychahou P**, Croft C, Evers BM. Sodium butyrate decreases levels of the invasion-promoting beta 4 integrin in pancreatic cancer cells. *Gastroenterology* 124:A805, 2003.
3. **Rychahou PG**, Murillo CA, Evers BM. Downregulation of the PI3K/Akt pathway leads to decreased invasion of the human colon cancer cells. *Journal of the American College of Surgeons* 199:S10, 2004.
4. Murillo CA, **Rychahou PG**, Evers BM. RNAi-mediated inhibition of cyclin D1 decreases colon cancer cell proliferation and MMP protein expression. *Journal of the American College of Surgeons* 199:S11, 2004.
5. Kang J, **Rychahou P**, Qiao J, Evers BM, Chung DH. MYCN RNA interference decreases anti-apoptotic gene expression and proliferation of neuroblastomas. *Journal of the American College of Surgeons* 199:S54, 2004.
5. Watanabe H, Saito H, **Rychahou P**, Evers BM. Phosphatidylinositol 3-kinase p85- α regulatory subunit plays a critical role in pancreatic acinar cell regeneration after partial pancreatectomy. *Gastroenterology* 128:A356, 2005.
7. Jackson LN, **Rychahou PG**, Evers BM. Targeted RNA interference of PI3K pathway components confers survival benefit in a mouse model of inflammatory bowel disease. *Journal of American College of Surgeons* 201:S15, 2005.
8. **Rychahou PG**, Jackson LN, Chau KT, Evers BM. RNAI directed to the PI3K p85 α subunit attenuates inflammatory changes associated with DSS-induced colitis. *Journal of Surgical Research* 130:199, 2006.
9. Jackson LN, **Rychahou PG**, Silva SR, Evers BM. Differential effects of selective or complete PI3K inhibition in a murine inflammatory bowel disease model. *Gastroenterology* 130:A345, 2006.
10. Zhang W, Chen Xi, Yoichi K, Evans PM, Yuan S, Yang J, **Rychahou PG**, Yang VW, He X, Evers BM, Liu C. Novel crosstalk of Krüppel-like factor 4 and beta-catenin regulates normal intestinal homeostasis and tumor repression. *Gastroenterology* 130:A117, 2006.

11. Jackson LN, Larson SD, Silva SR, **Rychahou PG**, Chen LA, Evers BM. Targeted knockdown of PI3K components with small interfering RNA (siRNA) inhibits liver regeneration following partial hepatectomy. *Journal of Surgical Research* 137:153, 2007.
12. **Rychahou PG**, Kang J, Chen LA, Chung DH, Evers BM. Enhanced sensitivity of human colon cancer cells to 5-fluorouracil and trail by selective inhibition of the PI3K/Akt pathway. *Journal of Surgical Research* 137:168, 2007.
13. Baregamian N, **Rychahou P**, Evers BM, Chung DH. Phosphatidylinositol 3-kinase pathway regulates hypoxia-inducible factor-1 to protect from intestinal injury during necrotizing enterocolitis. *Journal of Surgical Research* 137:171, 2007.
14. Larson SD, Jackson LN, Chen LA, **Rychahou PG**, Evers BM. Effectiveness of siRNA uptake in target tissues by various delivery methods. *Journal of Surgical Research* 137:189, 2007.
15. **Rychahou PG**, Chen LA, Jackson LN, Evers BM. Targeting the class IA PI3K in human colorectal cancer. *Proceedings of the American Association of Cancer Research* 48:292, 2007.
16. Kang JH, **Rychahou PG**, Ishola T, Evers BM, Chung DH. Phosphatidylinositol 3-kinase and *MYCN* regulation of VEGF expression in neuroblastoma cells. *Proceedings of the American Association of Cancer Research* 48:1367, 2007.
17. Jackson LN, Chen LA, Li J, **Rychahou PG**, Larson SD, Boor PJ, Townsend Jr CM, Evers BM. Development and characterization of a novel *in vivo* model for carcinoid syndrome. *Gastroenterology* 132:A130, 2007.

PRESENTATIONS:

NATIONAL MEETINGS (ORAL PRESENTATIONS):

1. siRNA directed against PI3K P85 α subunit or Akt1 inhibits growth and augments sodium butyrate (NaBT)-induced apoptosis in colon cancer cells. Society of University Surgeons, St. Louis, MO, Feb 13, 2004.
2. Downregulation of the PI3K/Akt pathway leads to decreased invasion of the human colon cancer cells. Surgical Forum, Am College of Surgeons, New Orleans, LA, Oct 11, 2004.
3. Targeted RNA interference of PI3K pathway components sensitizes colon cancer cells to tnfr-related apoptosis-inducing ligand (TRAIL). Society of University Surgeons, Nashville, TN, Feb, 2005.
4. Role of PIK3CA Gene in Colon Adenocarcinoma Progression. Southern Surgical Assoc., Hot Springs, VA, Dec, 2005.

5. RNAi directed to the PI3K P85 α subunit attenuates inflammatory changes associated with dss-induced colitis. Academic Surgical Congress (Society of University Surgeons), San Diego, CA, Feb, 2006.
6. Enhanced sensitivity of human colon cancer cells to 5-fluorouracil and trail by selective inhibition of the pi3k/akt pathway. Academic Surgical Congress (Society of University Surgeons), Phoenix, AZ, Feb, 2007
7. Akt2 is a critical regulator of colorectal cancer metastasis establishment. Academic Surgical Congress (Society of University Surgeons), Huntington Beach, CA, Feb, 2008.
8. Concurrent mutations of PTEN and Akt2 overexpression in colorectal cancer increases micrometastasis establishment and growth. AGA, San Diego, May, 2008.

NATIONAL MEETINGS (POSTER PRESENTATIONS):

1. Targeting the class IA PI3K in human colorectal cancer. Am Assoc for Cancer Research, Los Angeles, CA, Apr, 2007.

LOCAL MEETINGS (ORAL AND POSTER PRESENTATIONS):

1. siRNA directed against pi3k P85 α subunit or akt1 inhibits growth and augments sodium butyrate (NaBT)-induced apoptosis in colon cancer cells (poster). Gulf Coast Forum, League City, TX, 2004
2. Role of PIK3CA gene in colon adenocarcinoma progression (poster). Science Forum UTMB, Galveston, TX, June 2006.
3. Functional consequences of Akt2 expression for colorectal cancer progression (speech). Singleton Surgical Society, UTMB, Galveston, TX, June 2007
4. Targeting the class IA PI3K in human colorectal cancer (poster). UTMB Cancer Center "Cancer Center Day" UTMB, October Galveston, TX, 2007

MENTORING:

1. Independent Study in Scientific Research and Design. 2004-2005. Student won first place: poster.
2. Independent Study in Scientific Research and Design. 2007-2008. Student won first place: oral presentation.

COMPLETED COURSES:

1. Scientific Writing for Clinical Research. Clinical Research Education Program at UTMB. 2006.

2. Advanced Management Courses. University of Houston-Clear Lake. 2007.
3. Clinical Research: Tools and Technique. Clinical Research Education Program at UTMB. 2007-2008.
4. Cancer Research Imaging Camp. Cancer Imaging Program, NCI. 2008.