



Anson Lowe

Associate Professor of Medicine (Gastroenterology and Hepatology), Emeritus
Medicine - Gastroenterology & Hepatology

 NIH Biosketch available Online

CONTACT INFORMATION

• Administrative Contact

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Bio

ACADEMIC APPOINTMENTS

- Professor Emeritus-Hourly, Medicine - Gastroenterology & Hepatology
- Member, SPARK at Stanford
- Faculty Fellow, Sarafan ChEM-H
- Member, Stanford Cancer Institute

ADMINISTRATIVE APPOINTMENTS

- Co-Course Director - Human Health & Disease, Stanford University, (2004-2020)
- Member, Stanford School of Medicine Awards Committee, Stanford University, (2001- present)
- Associate Editor, The American Journal of Medicine, (2000-2004)
- Special Sections Editor, Gastroenterology (journal), (2011-2016)
- Co-Director, Stanford Gastroenterology Training Program, Stanford University, (2012-2020)
- Associate Director, Stanford Digestive Disease Center, Stanford University, (2001-2012)

HONORS AND AWARDS

- Oscar Salvatierra Award for Exceptional Service to Stanford Medical Students (teaching), Stanford School of Medicine (2021)
- Division Teaching Award, Stanford University (2001, 2004, 2007, 2008, 2012)
- AOA inductee, Alpha Omega Alpha Honor Medical Society (1979)
- Lester R. Tuchman Award for clinical excellence (graduating class award), Mount Sinai Hospital (1980)
- American Gastroenterology Association Fellow, American Gastroenterology Association (2009)

PROFESSIONAL EDUCATION

- Post-Doctoral Fellowship, UCSF, Department of Biochemistry & Biophysics , Cell Biology/Biochemistry (1989)
- Clinical Fellowship, UCSF, Department of Medicine , Gastroenterology and Hepatology (1985)
- Post-Doctoral Fellowship, Columbia Presbyterian Hospital , Nephrology (1984)

- Residency, Columbia Presbyterian Hospital , Internal Medicine (1983)
- MD, Mt. Sinai Sch. of Med. , Medicine (1980)
- BA, UC Berkeley , Physiology (1976)

PATENTS

- Lowe, Anson W., Dong, Aiwen. "United States Patent 9,415,088 Use of AGR3 for Treating Cancer", The Board of Trustees of the Leland Stanford Junior University, Aug 16, 2016

LINKS

- Lowe Laboratory: <https://web.stanford.edu/group/lowelab/>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

The laboratory is focused on human cancers that are dependent on EGFR cell signaling. In particular, we recently established that the AGR2 protein serves an essential role in EGFR presentation to the cell surface, and represents a novel mechanism of regulating cell signaling. We have long history in pancreatic biology and disease. Recent work elucidated the role of EGFR cell signaling during tissue regeneration in response to pancreatitis. Our overall hypothesis is that EGFR signaling serves a vital role in tissue regeneration, and that chronic injury and persistent wound healing lead to the development of preneoplastic lesions and eventually cancer. We hypothesize that this pathway is active in a large number of human cancers. If true, new opportunities for the treatment of preneoplastic and neoplastic diseases are provided, which represents a major focus of the laboratory. Active projects are focused on cancer pathogenesis, tissue regeneration, development of diagnostic assays, and drug development.

CLINICAL TRIALS

- Novel Serum Markers for Monitoring Response to Anti-Cancer Therapy, Recruiting

Teaching

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Cancer Biology (Phd Program)

Publications

PUBLICATIONS

- **Anterior Gradient 2 (AGR2) Induced Epidermal Growth Factor Receptor (EGFR) Signaling Is Essential for Murine Pancreatitis-Associated Tissue Regeneration.** *PloS one*
Wodziak, D., Dong, A., Basin, M. F., Lowe, A. W.
2016; 11 (10)
- **Epidermal Growth Factor Receptor (EGFR) Signaling Requires a Specific Endoplasmic Reticulum Thioredoxin for the Post-translational Control of Receptor Presentation to the Cell Surface.** *journal of biological chemistry*
Dong, A., Wodziak, D., Lowe, A. W.
2015; 290 (13): 8016-8027
- **Loss of Anterior Gradient 2 (Agr2) Expression Results in Hyperplasia and Defective Lineage Maturation in the Murine Stomach** *JOURNAL OF BIOLOGICAL CHEMISTRY*
Gupta, A., Wodziak, D., Tun, M., Bouley, D. M., Lowe, A. W.
2013; 288 (6): 4321-4333
- **AGR2 Gene Function Requires a Unique Endoplasmic Reticulum Localization Motif** *JOURNAL OF BIOLOGICAL CHEMISTRY*
Gupta, A., Dong, A., Lowe, A. W.
2012; 287 (7): 4773-4782

- **The Human Adenocarcinoma-associated Gene, AGR2, Induces Expression of Amphiregulin through Hippo Pathway Co-activator YAP1 Activation** *JOURNAL OF BIOLOGICAL CHEMISTRY*
Dong, A., Gupta, A., Pai, R. K., Tun, M., Lowe, A. W.
2011; 286 (20): 18301-18310
- **Uptake through glycoprotein 2 of FimH(+) bacteria by M cells initiates mucosal immune response** *NATURE*
Hase, K., Kawano, K., Nochi, T., Pontes, G. S., Fukuda, S., Ebisawa, M., Kadokura, K., Tobe, T., Fujimura, Y., Kawano, S., Yabashi, A., Waguri, S., Nakato, et al
2009; 462 (7270): 226-U101
- **The adenocarcinoma-associated antigen, AGR2, promotes tumor growth, cell migration, and cellular transformation** *CANCER RESEARCH*
Wang, Z., Hao, Y., Lowe, A. W.
2008; 68 (2): 492-497
- **Gene Expression Patterns in Pancreatic Tumors, Cells and Tissues** *PLOS ONE*
Lowe, A. W., Olsen, M., Hao, Y., Lee, S. P., Lee, K. T., Chen, X., van de Rijn, M., Brown, P. O.
2007; 2 (3)
- **Inducible expression of immediate early genes is regulated through dynamic chromatin association by NF45/ILF2 and NF90/NF110/ILF3** *PLOS ONE*
Wu, T., Shi, L., Lowe, A. W., Nicolls, M. R., Kao, P. N.
2019; 14 (4)
- **Inducible expression of immediate early genes is regulated through dynamic chromatin association by NF45/ILF2 and NF90/NF110/ILF3.** *PloS one*
Wu, T. H., Shi, L. n., Lowe, A. W., Nicolls, M. R., Kao, P. N.
2019; 14 (4): e0216042
- **Indication for differential sorting of the rat v-SNARE splice isoforms VAMP-1a and -1b.** *Biochemistry and cell biology = Biochimie et biologie cellulaire*
Rodepeter, F. R., Wiegand, S., Lüers, H., Bonaterra, G. A., Lowe, A. W., Bette, M., Jacob, R., Mandic, R.
2017
- **Endoscopic Index of Disease Severity in Crohn's and Ulcerative Colitis** *GASTROENTEROLOGY*
Lowe, A. W., Moseley, R. H.
2013; 145 (5): 917-20
- **Detection of pancreatic ductal adenocarcinoma in mice by ultrasound imaging of thymocyte differentiation antigen 1.** *Gastroenterology*
Foygel, K., Wang, H., Machtaler, S., Lutz, A. M., Chen, R., Pysz, M., Lowe, A. W., Tian, L., Carrigan, T., Brentnall, T. A., Willmann, J. K.
2013; 145 (4): 885-894 e3
- **Metabolomic-derived novel cyst fluid biomarkers for pancreatic cysts: glucose and kynurenine** *GASTROINTESTINAL ENDOSCOPY*
Park, W. G., Wu, M., Bowen, R., Zheng, M., Fitch, W. L., Pai, R. K., Wodziak, D., Visser, B. C., Poultides, G. A., Norton, J. A., Banerjee, S., Chen, A. M., Friedland, et al
2013; 78 (2): 295-?
- **CITED2 is a novel direct effector of peroxisome proliferator-activated receptor gamma in suppressing hepatocellular carcinoma cell growth** *CANCER*
Cheung, K., Zhao, J., Hao, Y., Li, X., Lowe, A. W., Cheng, A. S., Sung, J. J., Yu, J.
2013; 119 (6): 1217-1226
- **Immunohistochemical panel for distinguishing esophageal adenocarcinoma from squamous cell carcinoma: a combination of p63, cytokeratin 5/6, MUC5AC, and anterior gradient homolog 2 allows optimal subtyping** *HUMAN PATHOLOGY*
DiMaio, M. A., Kwok, S., Montgomery, K. D., Lowe, A. W., Pai, R. K.
2012; 43 (11): 1799-1807
- **PDX1 regulation of FABP1 and novel target genes in human intestinal epithelial Caco-2 cells** *BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS*
Chen, C., Fang, R., Chou, L., Lowe, A. W., Sibley, E.
2012; 423 (1): 183-187
- **Loss of AGR2 results in compromised chief cell differentiation and preneoplastic metaplasia of stomach**
Gupta, A., Lowe, A., Tun, M.
AMER ASSOC CANCER RESEARCH.2012

- **Expression of AGR2 in lung cancer cells needs an active Hippo pathway co-activator, YAP1**
Dong, A., Tun, M., Wodziak, D., Gupta, A., Lowe, A.
AMER ASSOC CANCER RESEARCH.2012
- **Diagnostic accuracy of cyst fluid amphiregulin in pancreatic cysts** *BMC GASTROENTEROLOGY*
Tun, M. T., Pai, R. K., Kwok, S., Dong, A., Gupta, A., Visser, B. C., Norton, J. A., Poultsides, G. A., Banerjee, S., Van Dam, J., Chen, A. M., Friedland, S., Scott, et al
2012; 12
- **The pancreatic zymogen granule membrane protein, GP2, binds Escherichia coli type 1 Fimbriae** *BMC GASTROENTEROLOGY*
Yu, S., Lowe, A. W.
2009; 9
- **Painless Jaundice and Bilaterally Enlarged Sub-mandibular Glands in an Elderly Man** *DIGESTIVE DISEASES AND SCIENCES*
Park, W. G., Pai, R., Ro, K., Lowe, A. W.
2009; 54 (3): 488-490
- **Endoscopic evaluation of esophago-gastro-jejunostomy in rat model of Barrett's esophagus** *DISEASES OF THE ESOPHAGUS*
Lu, S., Lowe, A. W., Triadafilopoulos, G., Hsiung, P., Hao, Y., Crawford, J. M., Wang, T. D.
2009; 22 (4): 323-330
- **Comprehensive gene expression profiling of Peyer's patch M cells, villous M-like cells, and intestinal epithelial cells** *JOURNAL OF IMMUNOLOGY*
Terahara, K., Yoshida, M., Igarashi, O., Nochi, T., Pontes, G. S., Hase, K., Ohno, H., Kurokawa, S., Mejima, M., Takayama, N., Yuki, Y., Lowe, A. W., Kiyono, et al
2008; 180 (12): 7840-7846
- **Detection of colonic dysplasia in vivo using a targeted heptapeptide and confocal microendoscopy** *NATURE MEDICINE*
Hsiung, P., Hardy, J., Friedland, S., Soetikno, R., Du, C. B., Wu, A. P., Sahbaie, P., Crawford, J. M., Lowe, A. W., Contag, C. H., Wang, T. D.
2008; 14 (4): 454-458
- **The nucleotide binding motif of hepatitis C virus NS4B can mediate cellular transformation and tumor formation without ha-ras co-transfection** *HEPATOLOGY*
Einav, S., Sklan, E. H., Moon, H. M., Gehrig, E., Liu, P., Hao, Y., Lowe, A. W., Glenn, J. S.
2008; 47 (3): 827-835
- **Physiological and molecular analysis of acid loading mechanisms in squamous and columnar-lined esophagus** *DISEASES OF THE ESOPHAGUS*
Lao-Sirieix, P., Corovic, A., Jankowski, J., Lowe, A., Triadafilopoulos, G., Fitzgerald, R. C.
2008; 21 (6): 529-538
- **Gene expression profiles in gallbladder cancer: The close genetic similarity seen for early and advanced gallbladder cancers may explain the poor prognosis** *TUMOR BIOLOGY*
Kim, J. h., Kim, H. N., Lee, K. T., Lee, J. K., Choi, S., Paik, S. W., Rhee, J. C., Lowe, A. W.
2008; 29 (1): 41-49
- **Mistaken identity of widely used esophageal adenocarcinoma cell line TE-7** *CANCER RESEARCH*
Boonstra, J. J., van der Velden, A. W., Beerens, E. C., van Marion, R., Morita-Fujimura, Y., Matsui, Y., Nishihira, T., Tselepis, C., Hainaut, P., Lowe, A. W., Beverloo, B. H., Van Dekken, H., Tilanus, et al
2007; 67 (17): 7996-8001
- **Gene expression changes associated with Barrett's esophagus and Barrett's-associated adenocarcinoma cell lines after acid or bile salt exposure** *BMC GASTROENTEROLOGY*
Hao, Y., Sood, S., Triadafilopoulos, G., Kim, J. H., Wang, Z., Sahbaie, P., Omary, M. B., Lowe, A. W.
2007; 7
- **Gene expression profiling in lymph node-positive and lymph node-negative pancreatic cancer** *PANCREAS*
Kim, H. N., Choi, D. W., Lee, K. T., Lee, J. K., Heo, J. S., Choi, S., Paik, S. W., Rhee, J. C., Lowe, A. W.
2007; 34 (3): 325-334
- **The pancreatic stellate cell: a star on the rise in pancreatic diseases** *JOURNAL OF CLINICAL INVESTIGATION*
Omary, M. B., Lugea, A., Lowe, A. W., Pandol, S. J.

2007; 117 (1): 50-59

- **Gene expression profiling reveals stromal genes expressed in common between Barrett's esophagus and adenocarcinoma** *GASTROENTEROLOGY*
Hao, Y., Triadafilopoulos, G., Sahbaie, P., Young, H. S., Omary, M. B., Lowe, A. W.
2006; 131 (3): 925-933
- **The genome is now accessible to the endoscopist** *GASTROINTESTINAL ENDOSCOPY*
Lowe, A. W.
2006; 64 (1): 27-28
- **Absence of the major zymogen granule membrane protein, GP2, does not affect pancreatic morphology or secretion** *JOURNAL OF BIOLOGICAL CHEMISTRY*
Yu, S., Michie, S. A., Lowe, A. W.
2004; 279 (48): 50274-50279
- **Effects of GP2 expression on secretion and endocytosis in pancreatic AR4-2J cells** *BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS*
Yu, S., Hao, Y., Lowe, A. W.
2004; 322 (1): 320-325
- **Determination of plasma glycoprotein 2 levels in patients with pancreatic disease** *ARCHIVES OF PATHOLOGY & LABORATORY MEDICINE*
Hao, Y., Wang, J., Feng, N. G., Lowe, A. W.
2004; 128 (6): 668-674
- **Exploration of global gene expression patterns in pancreatic adenocarcinoma using cDNA microarrays** *AMERICAN JOURNAL OF PATHOLOGY*
Iacobuzio-Donahue, C. A., Maitra, A., Olsen, M., Lowe, A. W., van Heek, N. T., Rosty, C., Walter, K., Sato, N., Parker, A., Ashfaq, R., Jaffee, E., Ryu, B., Jones, et al
2003; 162 (4): 1151-1162
- **Hyposmotic stress induces cell growth arrest via proteasome activation and cyclin/cyclin-dependent kinase degradation** *JOURNAL OF BIOLOGICAL CHEMISTRY*
Tao, G. Z., Rott, L. S., Lowe, A. W., Omary, M. B.
2002; 277 (22): 19295-19303
- **Processing of the major pancreatic zymogen granule membrane protein, GP2** *PANCREAS*
Fritz, B. A., Poppel, C. S., Fei, M. W., Lowe, A. W.
2002; 24 (4): 336-343
- **A subset of human pancreatic cancer cell lines respond to the elastase I enhancer.**
Fei, M. W., MACDONALD, R. J., Lowe, A. W.
W B SAUNDERS CO-ELSEVIER INC.2000: A517-A517
- **Effects of keratin filament disruption on exocrine pancreas-stimulated secretion and susceptibility to injury** *EXPERIMENTAL CELL RESEARCH*
Toivola, D. M., Ku, N. O., Ghori, N., Lowe, A. W., Michie, S. A., Omary, M. B.
2000; 255 (2): 156-170
- **Characterization of an alternatively spliced isoform of rat vesicle associated membrane protein-2 (VAMP-2)** *FEBS LETTERS*
Mandic, R., Lowe, A. W.
1999; 451 (2): 209-213
- **Tissue-specific alternative RNA splicing of rat vesicle-associated membrane protein-1 (VAMP-1)** *GENE*
Mandic, R., Trimble, W. S., Lowe, A. W.
1997; 199 (1-2): 173-179
- **Sequence of the cDNA encoding human GP-2, the major membrane protein in the secretory granule of the exocrine pancreas** *GENE*
Wong, S. M., Lowe, A. W.
1996; 171 (2): 311-312
- **Polarized GP2 secretion in MDCK cells via GPI targeting and apical membrane-restricted proteolysis** *AMERICAN JOURNAL OF PHYSIOLOGY-GASTROINTESTINAL AND LIVER PHYSIOLOGY*
Fritz, B. A., Lowe, A. W.
1996; 270 (1): G176-G183

- **HIERARCHY OF MECHANISMS INVOLVED IN GENERATING NA/K-ATPASE POLARITY IN MDCK EPITHELIAL-CELLS** *JOURNAL OF CELL BIOLOGY*
Mays, R. W., Siemers, K. A., Fritz, B. A., Lowe, A. W., VANMEER, G., NELSON, W. J.
1995; 130 (5): 1105-1115
- **THE LEVEL OF THE ZYMOGEN GRANULE PROTEIN GP2 IS ELEVATED IN A RAT MODEL FOR ACUTE-PANCREATITIS** *GASTROENTEROLOGY*
Lowe, A. W., Luthen, R. E., Wong, S. M., Grendell, J. H.
1994; 107 (6): 1819-1827
- **APICAL PLASMA-MEMBRANE PROTEINS ARE NOT OBLIGATORILY STORED IN SECRETORY GRANULES IN EXOCRINE CELLS** *JOURNAL OF CELL SCIENCE*
Colomer, V., Rindler, M. J., Lowe, A. W.
1994; 107: 2271-2277
- **GP-3, A NEWLY CHARACTERIZED GLYCOPROTEIN ON THE INNER SURFACE OF THE ZYMOGEN GRANULE MEMBRANE, UNDERGOES REGULATED SECRETION** *JOURNAL OF BIOLOGICAL CHEMISTRY*
WAGNER, A. C., WISHART, M. J., MULDER, S. M., BLEVINS, P. M., ANDREWS, P. C., LOWE, A. W., WILLIAMS, J. A.
1994; 269 (12): 9099-9104
- **IDENTIFICATION OF A VESICLE-ASSOCIATED MEMBRANE-PROTEIN (VAMP)-LIKE MEMBRANE-PROTEIN IN ZYMOGEN GRANULES OF THE RAT EXOCRINE PANCREAS** *JOURNAL OF BIOLOGICAL CHEMISTRY*
Braun, J. E., Fritz, B. A., Wong, S. M., Lowe, A. W.
1994; 269 (7): 5328-5335
- **ANTISENSE OLIGODEOXYNUCLEOTIDES TO THE CYSTIC-FIBROSIS TRANSMEMBRANE CONDUCTANCE REGULATOR INHIBIT CAMP-ACTIVATED BUT NOT CALCIUM-ACTIVATED CHLORIDE CURRENTS** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Wagner, J. A., McDonald, T. V., NGHIEM, P. T., Lowe, A. W., Schulman, H., Gruenert, D. C., Stryer, L., Gardner, P.
1992; 89 (15): 6785-6789

PRESENTATIONS

- Barrett's Esophagus Biology & Treatment - Stanford Medical Grand Rounds (10/2010)
- Tadpoles, Salamanders, and Human Adenocarcinomas - GI Grand Rounds (10/2011)
- Symposium in honor of Dr. Qais Al-Awqati - College of Physician's & Surgeons (3/7/2012)
- AGR2 and Pancreatic Cancer - Univ. of California, San Francisco (2/2013)
- Research Conference - Stanford Division of Gastroenterology & Hepatology (3/2014)
- Regulating EGFR Signaling Within the Secretory Pathway - Department of Molecular Pharmacology, Albert Einstein College of Medicine (4/2015)