


Stanford



AC Matin

Professor of Microbiology and Immunology, Emeritus
Microbiology & Immunology

 NIH Biosketch available Online

 Curriculum Vitae available Online

CONTACT INFORMATION

- **Alternate Contact**

Bonda Lewis

Email llewys@stanford.edu

Bio

BIO

For complete and up to date information on this and other items, consult my Curriculum vitae (updated, 12/16), and website; URL:

<http://www.stanford.edu/~amatin/MatinLabHomePage/MatinLabHome-Page.htm>

ACADEMIC APPOINTMENTS

- Emeritus Faculty, Acad Council, Microbiology & Immunology
- Member, Bio-X
- Member, Cardiovascular Institute
- Member, Stanford Cancer Institute

ADMINISTRATIVE APPOINTMENTS

- Member, Stanford Panel on human subjects, Stanford University, (2000-2004)
- Member, Stanford Recombinant DNA Panel, Stanford University, (1979-1982)
- Chair, Stanford Recombinant DNA Panel, Stanford University, (1981-1982)
- Chair, Department Admissions Committee, Stanford University, (1985-1988)
- Member, Administrative Panel on Biosafety, Stanford University, (1995-1996)
- Member, Stanford Human Subjects Panel, (2000-2004)
- Senator, Medical School senate, (2006-2012)
- Member, MS senate steering committee, (2008-2012)
- Chair, MS senate task force on postdoctoral affairs, (2009-2012)

HONORS AND AWARDS

- Editorial Board, Annual Review of Microbiology (1980-1983, 2005)
- Member Study Section, National Institutes of Health (2003)
- Member Study Section, Department of Energy (1996, 1997, 2002)

- Editorial Board Member: Journal of Bacteriology, American Society for Microbiology (1987-1993)
- Member Study Section, NIH Environmental Institute (2003)
- Member Study Section, National Aeronautics and Space Administration (2001, 2004, 2008, 2011)
- Board Member, Scientific Advisory Board, Institute of Molecular Medicine, New York, Kolkata (2002-2004)
- Member, Advisory Board, Chembiotek (2002 - 2004)
- Member, Advisory Board, Chemgen Pharma International (2004-2008)
- Expert consultant and witness, Law Offices of Swidler Berlin Shereff Friedman, LLP. (1999 - 2001)
- Fulbright Scholar, Fulbright Foundation (1964-1971)
- Foundation for Microbiology Lecturer, American Society for Microbiology (1991-1993)
- Review Committee Member, Accreditation Board for Engineering and Technology (1992)
- Star Award, Environmental Protection Agency (1991,1997)
- Elected Fellow, American Academy of Microbiology (1994-)
- Chartered Member, Drug Discovery & Molecular Pharmacology Study section, NCI (2008-2012)
- Editor-in-Chief, Open Journal of Applied Sciences (2012)
- Editorial Board, Cancer Management and Research (2008-present)
- Editorial Board, Journal of Molecular Imaging & Dynamic (2010-present)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Listed in, Wikipedia (2021 - present)

PROFESSIONAL EDUCATION

- Ph. D., University of California , Microbiology (1969)

COMMUNITY AND INTERNATIONAL WORK

- Exosome-mediated specific therapy of cancer
- Bacterial antibiotic resistance in space flight, Stanford University; NASA Ames
- Nuclear waste remediation
- Lectures

PATENTS

- AC Matin. "United States Follow my website; URL hyperlinked in, "LINKS""

LINKS

- <https://web.stanford.edu/~amatin/MatinLabHomePage/MatinLabHome-Page.htm>: <https://web.stanford.edu/~amatin/MatinLabHomePage/MatinLabHome-Page.htm>
- Personal Web site: <https://web.stanford.edu/~amatin/MatinLabHomePage/MatinLabHome-Page.htm>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Please follow myResearch/

Lab website link: <http://www.stanford.edu/~amatin/MatinLabHomePage/MatinLabHome-Page.htm>

Teaching

COURSES

2020-21

- Topics in Microbiology: MI 285 (Win)

2019-20

- Topics in Microbiology: MI 185, MI 285 (Win)

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Bioengineering (Phd Program)
- Cancer Biology (Phd Program)
- Cardiovascular Medicine (Fellowship Program)
- Microbiology and Immunology (Phd Program)
- Molecular and Genetic Medicine (Fellowship Program)

Publications

PUBLICATIONS

- **Response to Comments on "EcAMSat spaceflight measurements of the role of sigmas in antibiotic resistance of stationary phase Escherichia coli in microgravity"**. *Life sciences in space research*
Padgen, M. R., Parra, M. P., Ricco, A. J., Matin, A. C.
2021; 29: 85–86
- **EcAMSat spaceflight measurements of the role of #s in antibiotic resistance of stationary phase Escherichia coli in microgravity**. *Life sciences in space research*
Padgen, M. R., Lera, M. P., Parra, M. P., Ricco, A. J., Chin, M. n., Chinn, T. N., Cohen, A. n., Friedericks, C. R., Henschke, M. B., Snyder, T. V., Spremo, S. M., Wang, J. H., Matin, et al
2020; 24: 18–24
- **Extracellular vesicle-mediated in vitro transcribed mRNA delivery for treatment of HER2+ breast cancer xenografts in mice by prodrug CB1954 without general toxicity**. *Molecular cancer therapeutics*
Forterre, A. V., Wang, J. H., Delcayre, A. n., Kim, K. n., Green, C. n., Pegram, M. D., Jeffrey, S. S., Matin, A. C.
2020
- **Phenotyping antibiotic resistance with single-cell resolution for the detection of heteroresistance** *SENSORS AND ACTUATORS B-CHEMICAL*
Lyu, F., Pan, M., Patil, S., Wang, J., Matin, A. C., Andrews, J. R., Tang, S. Y.
2018; 270: 396–404
- **Anti-HER2 scFv-directed extracellular vesicle-mediated mRNA-based gene delivery inhibits growth of HER2-positive human breast tumor xenografts by prodrug activation**. *Molecular cancer therapeutics*
Wang, J., Forterre, A. V., Zhao, J., Frimannsson, D. O., Delcayre, A., Antes, T. J., Efron, B., Jeffrey, S. S., Pegram, M. D., Matin, A. C.
2018
- **Payload hardware and experimental protocol development to enable future testing of the effect of space microgravity on the resistance to gentamicin of uropathogenic Escherichia coli and its sigma(s)-deficient mutant** *LIFE SCIENCES IN SPACE RESEARCH*
Matin, A. C., Wang, J., Keyhan, M., Singh, R., Benoit, M., Parra, M. P., Padgen, M. R., Ricco, A. J., Chin, M., Friedericks, C. R., Chinn, T. N., Cohen, A., Henschke, et al
2017; 15: 1–10
- **Utilizing native fluorescence imaging, modeling and simulation to examine pharmacokinetics and therapeutic regimen of a novel anticancer prodrug**. *BMC cancer*
Wang, J., Endsley, A. N., Green, C. E., Matin, A. C.
2016; 16: 524-?

- **Differential fates of biomolecules delivered to target cells via extracellular vesicles.** *Proceedings of the National Academy of Sciences of the United States of America*
Kanada, M., Bachmann, M. H., Hardy, J. W., Frimannson, D. O., Bronsart, L., Wang, A., Sylvester, M. D., Schmidt, T. L., Kaspar, R. L., Butte, M. J., Matin, A. C., Contag, C. H.
2015; 112 (12): E1433-42
- **Differential fates of biomolecules delivered to target cells via extracellular vesicles** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Kanada, M., Bachmann, M. H., Hardy, J. W., Frimannson, D. O., Bronsart, L., Wang, A., Sylvester, M. D., Schmidt, T. L., Kaspar, R. L., Butte, M. J., Matin, A. C., Contag, C. H.
2015; 112 (12): E1433-E1442
- **Sigma S-Dependent Antioxidant Defense Protects Stationary-Phase Escherichia coli against the Bactericidal Antibiotic Gentamicin** *ANTIMICROBIAL AGENTS AND CHEMOTHERAPY*
Wang, J., Singh, R., Benoit, M., Keyhan, M., Sylvester, M., Hsieh, M., Thathireddy, A., Hsieh, Y., Matin, A. C.
2014; 58 (10): 5964-5975
- **Sigma S-dependent antioxidant defense protects stationary-phase Escherichia coli against the bactericidal antibiotic gentamicin.** *Antimicrobial agents and chemotherapy*
Wang, J., Singh, R., Benoit, M., Keyhan, M., Sylvester, M., Hsieh, M., Thathireddy, A., Hsieh, Y., Matin, A. C.
2014; 58 (10): 5964-5975
- **Microgravity Alters the Physiological Characteristics of Escherichia coli O157:H7 ATCC 35150, ATCC 43889, and ATCC 43895 under Different Nutrient Conditions** *APPLIED AND ENVIRONMENTAL MICROBIOLOGY*
KIM, H. W., Matin, A., Rhee, M. S.
2014; 80 (7): 2270-2278
- **Patient-derived xenografts of triple-negative breast cancer reproduce molecular features of patient tumors and respond to mTOR inhibition** *BREAST CANCER RESEARCH*
Zhang, H., Cohen, A. L., Krishnakumar, S., Wapnir, I. L., Veeriah, S., Deng, G., Coram, M. A., Piskun, C. M., Longacre, T. A., Herrler, M., Frimannsson, D. O., Telli, M. L., Dirbas, et al
2014; 16 (2)
- **Crystal Structure of ChrR-A Quinone Reductase with the Capacity to Reduce Chromate** *PLOS ONE*
Eswaramoorthy, S., Poulain, S., Hienerwadel, R., Bremond, N., Sylvester, M. D., Zhang, Y., Berthomieu, C., van der Lelie, D., Matin, A.
2012; 7 (4)
- **New Device for High-Throughput Viability Screening of Flow Biofilms** *APPLIED AND ENVIRONMENTAL MICROBIOLOGY*
Benoit, M. R., Conant, C. G., Ionescu-Zanetti, C., Schwartz, M., Matin, A.
2010; 76 (13): 4136-4142
- **Role of nitric oxide in Salmonella typhimurium-mediated cancer cell killing** *BMC CANCER*
Barak, Y., Schreiber, F., Thorne, S. H., Contag, C. H., deBeer, D., Matin, A.
2010; 10
- **Visualizing Implanted Tumors in Mice with Magnetic Resonance Imaging Using Magnetotactic Bacteria** *CLINICAL CANCER RESEARCH*
Benoit, M. R., Mayer, D., Barak, Y., Chen, I. Y., Hu, W., Cheng, Z., Wang, S. X., Spielman, D. M., Gambhir, S. S., Matin, A.
2009; 15 (16): 5170-5177
- **CNOB/ChrR6, a new prodrug enzyme cancer chemotherapy** *MOLECULAR CANCER THERAPEUTICS*
Thorne, S. H., Barak, Y., Liang, W., Bachmann, M. H., Rao, J., Contag, C. H., Matin, A.
2009; 8 (2): 333-341
- **Enzyme improvement in the absence of structural knowledge: a novel statistical approach** *ISME JOURNAL*
Barak, Y., Nov, Y., Ackerley, D. F., Matin, A.
2008; 2 (2): 171-179
- **Therapeutic implications of nitric oxide generation by tumor-targeting Salmonella typhimurium strains.**
Barak, Y., Schreiber, F., Thorne, S. H., Contag, C. H., de-Beer, D., Matin, A. C.
AMER ASSOC CANCER RESEARCH.2007: 3559S

- **Role of the rapA gene in controlling antibiotic resistance of Escherichia coli biofilms** *ANTIMICROBIAL AGENTS AND CHEMOTHERAPY*
Lynch, S. V., Dixon, L., Benoit, M. R., Brodie, E. L., Keyhan, M., Hu, P., Ackerley, D. F., Andersen, G. L., Matin, A.
2007; 51 (10): 3650-3658
- **Evolved high activity enzymes for enhancing combined bacterial chromate and uranyl bioremediation**
Matin, A. C., Barak, Y., Ackerley, D., Nov, Y., Francis, A. J., Dodge, C.
AMER CHEMICAL SOC.2007: 581
- **Escherichia coli biofilms formed under low-shear modeled microgravity in a ground-based system** *APPLIED AND ENVIRONMENTAL MICROBIOLOGY*
Lynch, S. V., Mukundakrishnan, K., Benoit, M. R., Ayyaswamy, P. S., Matin, A.
2006; 72 (12): 7701-7710
- **Analysis of novel soluble chromate and uranyl reductases and generation of an improved enzyme by directed evolution** *APPLIED AND ENVIRONMENTAL MICROBIOLOGY*
Barak, Y., Ackerley, D. F., Dodge, C. J., Banwari, L., Alex, C., Francis, A. J., Matin, A.
2006; 72 (11): 7074-7082
- **Effect of chromate stress on Escherichia coli K-12** *JOURNAL OF BACTERIOLOGY*
Ackerley, D. F., Barak, Y., Lynch, S. V., Curtin, J., Matin, A.
2006; 188 (9): 3371-3381
- **New enzyme for reductive cancer chemotherapy, YieF, and its improvement by directed evolution** *MOLECULAR CANCER THERAPEUTICS*
Barak, Y., Thorne, S. H., Ackerley, D. F., Lynch, S. V., Contag, C. H., Matin, A.
2006; 5 (1): 97-103
- **ChrR, a soluble quinone reductase of Pseudomonas putida that defends against H₂O₂** *JOURNAL OF BIOLOGICAL CHEMISTRY*
Gonzalez, C. F., Ackerley, D. F., Lynch, S. V., Matin, A.
2005; 280 (24): 22590-22595
- **Investigating the threat of bacteria grown in space** *ASM NEWS*
Matin, A., Lynch, S. V.
2005; 71 (5): 235-240
- **Biomolecular strategy to decrease chromate toxicity to remediating bacteria** *3rd International Conference on Water Resources Management*
Ackerley, D. F., Gonzalez, C. F., Keyhan, M., Blake, R., Matin, A.
WIT PRESS.2005: 259-267
- **Engineering Pseudomonas putida to minimize clogging during biostimulation** *3rd International Conference on the Impact of Environmental Factors on Health*
Matin, A., Hahm, D., Ackerley, D. F.
WIT PRESS.2005: 447-457
- **Role and regulation of sigma(s) in general resistance conferred by low-shear simulated microgravity in Escherichia coli** *JOURNAL OF BACTERIOLOGY*
Lynch, S. V., Brodie, E. L., Matin, A.
2004; 186 (24): 8207-8212
- **Mechanism of chromate reduction by the Escherichia coli protein, NfsA, and the role of different chromate reductases in minimizing oxidative stress during chromate reduction** *ENVIRONMENTAL MICROBIOLOGY*
Ackerley, D. F., Gonzalez, C. F., Keyhan, M., Blake, R., Matin, A.
2004; 6 (8): 851-860
- **Chromate-reducing properties of soluble Flavoproteins from Pseudomonas putida and Escherichia coli** *APPLIED AND ENVIRONMENTAL MICROBIOLOGY*
Ackerley, D. F., Gonzalez, C. F., Park, C. H., Blake, R., Keyhan, A., Matin, A.
2004; 70 (2): 873-882
- **The stress response of Escherichia coli to conditions of simulated microgravity** *Abstracts of the 102nd General meeting of the American Society for Microbiology, Washington D.C.*,
A. Matin., Lynch, S. V.
2003

- **A soluble flavoprotein contributes to chromate reduction and tolerance by *Pseudomonas putida*** *6th International Symposium of the International-Society-for-Environmental-Biotechnology*
Gonzalez, C. F., Ackerley, D. F., Park, C. H., Matin, A.
WILEY-VCH VERLAG GMBH.2003: 233–39
- **Tetracycline rapidly reaches all the constituent cells of uropathogenic *Escherichia coli* biofilms** *ANTIMICROBIAL AGENTS AND CHEMOTHERAPY*
Stone, G., Wood, P., Dixon, L., Keyhan, M., Matin, A.
2002; 46 (8): 2458-2461
- **A soluble flavoprotein contributes to chromate reduction and tolerance by *Pseudomonas putida*.** *Acta Biotechnology*
Ackerley DF, Park CH, Gonzalez CF, Keyhan M, Matin A
2002; 23: 233
- **Molecular engineering of soluble bacterial proteins with chromate reductase activity** *1st International Conference on Remediation of Contaminated Sediments*
Park, C. H., Gonzalez, C., Ackerley, D., Keyhan, M., Matin, A.
BATTELLE PRESS.2002: 103–111
- **The EmrR protein represses the *Escherichia coli* emrRAB multidrug resistance operon by directly binding to its promoter region** *ANTIMICROBIAL AGENTS AND CHEMOTHERAPY*
Xiong, A., Gottman, A., PARK, C., Baetens, M., Pandza, S., Matin, A.
2000; 44 (10): 2905-2907
- **Purification to homogeneity and characterization of a novel *Pseudomonas putida* chromate reductase** *APPLIED AND ENVIRONMENTAL MICROBIOLOGY*
Park, C. H., Keyhan, M., Wielinga, B., Fendorf, S., Matin, A.
2000; 66 (5): 1788-1795
- **The G-protein FlhF has a role in polar flagellar placement and general stress response induction in *Pseudomonas putida*** *MOLECULAR MICROBIOLOGY*
Pandza, S., Baetens, M., Park, C. H., Au, T., Keyhan, M., Matin, A.
2000; 36 (2): 414-423
- **PH homeostasis in acidophiles** *Symposium on Bacterial Responses to pH*
Matin, A., Konings, W. N., Epstein, W., Stock, J. B., Padan, E., Schafer, G., Booth, I. R., Rowbury, R. J., Bennett, G. N., Poole, R. K., Park, S. F.
JOHN WILEY & SONS LTD.1999: 152–166
- **How can archaea cope with extreme acidity?** *BACTERIAL RESPONSE TO PH*
Schafer, G., Krulwich, T. A., Poole, R. K., Padan, E., Konings, W. N., Skulachev, V., Fillingame, R. H., Matin, A., Dimroth, P., Booth, I. R., Bogachev, A., Cook, G. M., Dilworth, et al
1999; 221: 131-151
- **Acid tolerance induced by metabolites and secreted proteins, and how tolerance can be counteracted** *Symposium on Bacterial Responses to pH*
Rowbury, R. J., Foster, J. W., Konings, W. N., Matin, A., Poole, R. K., Schafer, G., Glenn, A. R., Booth, I. R., Park, S. F., Slonczewski, J. L., Epstein, W., Cook, G. M.
JOHN WILEY & SONS LTD.1999: 93–111
- **Acid and base regulation in the proteome of *Escherichia coli*** *Symposium on Bacterial Responses to pH*
Slonczewski, J. L., Blankenhorn, D., Foster, J. W., Matin, A., Booth, I. R., Stock, J. B., Skulachev, V., Rowbury, R. J., Konings, W. N., Bennett, G. N., Kobayashi, H., Fillingame, R. H., Schafer, et al
JOHN WILEY & SONS LTD.1999: 75–92
- **pH sensing in bacterial chemotaxis** *Symposium on Bacterial Responses to pH*
Levit, M. N., Stock, J. B., Foster, J. W., Matin, A., Fillingame, R. H., Konings, W. N., Slonczewski, J. L., Padan, E., Booth, I. R.
JOHN WILEY & SONS LTD.1999: 38–54
- **pH tolerance in *Bacillus*: alkaliphiles versus non-alkaliphiles** *Symposium on Bacterial Responses to pH*
Krulwich, T. A., Guffanti, A. A., Ito, M., Quivey, R. G., Skulachev, V., Matin, A., Stock, J. B., Konings, W. N., Glenn, A. R.
JOHN WILEY & SONS LTD.1999: 167–182
- **Final general discussion** *Symposium on Bacterial Responses to pH*
Bennett, G. N., Konings, W. N., Booth, I. R., Cook, G. M., Krulwich, T. A., Skulachev, V., Schafer, G., Epstein, W., Stock, J. B., Poole, R. K., Slonczewski, J. L., Glenn, A. R., Dilworth, et al

JOHN WILEY & SONS LTD.1999: 246-250

- **Survival strategies in the stationary phase** *International Meeting on Microbial Ecology and Infectious Disease*
Matin, A., Baetens, M., Pandza, S., Park, C. H., Waggoner, S.
AMER SOC MICROBIOLOGY.1999: 30-48
- **The Escherichia coli starvation gene cstC is involved in amino acid catabolism** *JOURNAL OF BACTERIOLOGY*
Fraley, C. D., Kim, J. H., McCann, M. P., Matin, A.
1998; 180 (16): 4287-4290
- **H-NS protein represses transcription of the lux systems of Vibrio fischeri and other luminous bacteria cloned into Escherichia coli** *CURRENT MICROBIOLOGY*
Ulitzur, S., Matin, A., Fraley, C., Meighen, E.
1997; 35 (6): 336-342
- **The sigma(s) level in starving Escherichia coli cells increases solely as a result of its increased stability, despite decreased synthesis** *MOLECULAR MICROBIOLOGY*
Zgurskaya, H. I., Keyhan, M., Matin, A.
1997; 24 (3): 643-651
- **A bacterial model system for understanding multi-drug resistance** *MICROBIAL DRUG RESISTANCE*
Saier, M. H., Paulsen, I. T., Matin, A.
1997; 3 (4): 289-295
- **Role of alternate sigma factors in starvation protein synthesis - Novel mechanisms of catabolite repression** *RESEARCH IN MICROBIOLOGY*
Matin, A.
1996; 147 (6-7): 494-505
- **Differential regulation of the mcb and emr operons of Escherichia coli: Role of mcb in multidrug resistance** *ANTIMICROBIAL AGENTS AND CHEMOTHERAPY*
Lomovskaya, O., Kawai, F., Matin, A.
1996; 40 (4): 1050-1052
- **Capacity of Helicobacter pylori to generate ionic gradients at low pH is similar to that of bacteria which grow under strongly acidic conditions** *INFECTION AND IMMUNITY*
Matin, A., Zychlinsky, E., Keyhan, M., Sachs, G.
1996; 64 (4): 1434-1436
- **Regulation of Escherichia coli starvation sigma factor (sigma(s)) by ClpXP protease** *JOURNAL OF BACTERIOLOGY*
Schweder, T., Lee, K. H., Lomovskaya, O., Matin, A.
1996; 178 (2): 470-476
- **USE OF STARVATION PROMOTERS TO LIMIT GROWTH AND SELECTIVELY ENRICH EXPRESSION OF TRICHLOROETHYLENE-TRANSFORMING AND PHENOL-TRANSFORMING ACTIVITY IN RECOMBINANT ESCHERICHIA-COLI (VOL 61, PG 3323, 1995)** *APPLIED AND ENVIRONMENTAL MICROBIOLOGY*
Matin, A., Little, C. D., Fraley, C. D., Keyhan, M.
1995; 61 (11): 4140-4140
- **USE OF STARVATION PROMOTERS TO LIMIT GROWTH AND SELECT FOR TRICHLOROETHYLENE AND PHENOL TRANSFORMATION ACTIVITY IN RECOMBINANT ESCHERICHIA-COLI** *APPLIED AND ENVIRONMENTAL MICROBIOLOGY*
Matin, A., Little, C. D., Fraley, C. D., Keyhan, M.
1995; 61 (9): 3323-3328
- **EMRR IS A NEGATIVE REGULATOR OF THE ESCHERICHIA-COLI MULTIDRUG-RESISTANCE PUMP EMRAB** *JOURNAL OF BACTERIOLOGY*
Lomovskaya, O., Lewis, K., Matin, A.
1995; 177 (9): 2328-2334
- **A CARBON STARVATION SURVIVAL GENE OF PSEUDOMONAS-PUTIDA IS REGULATED BY SIGMA(54)** *JOURNAL OF BACTERIOLOGY*
Kim, Y. J., Watrud, L. S., Matin, A.
1995; 177 (7): 1850-1859

- **CHARACTERIZATION OF THE SIGMA(38)-DEPENDENT EXPRESSION OF A CORE ESCHERICHIA-COLI STARVATION GENE, PEXB** *JOURNAL OF BACTERIOLOGY*
Lomovskaya, O. L., KIDWELL, J. P., Matin, A.
1994; 176 (13): 3928-3935
- **STARVATION PROMOTERS OF ESCHERICHIA-COLI - THEIR FUNCTION, REGULATION, AND USE IN BIOPROCESSING AND BIOREMEDIATION** *Conference on Recombinant DNA Technology*
Matin, A.
NEW YORK ACAD SCIENCES.1994: 277-291
- **THE PUTATIVE SIGMA-FACTOR KATF IS REGULATED POSTTRANSCRIPTIONALLY DURING CARBON STARVATION** *JOURNAL OF BACTERIOLOGY*
McCann, M. P., Fraley, C. D., Matin, A.
1993; 175 (7): 2143-2149
- **PHYSIOLOGICAL-RESPONSES OF LACTOCOCCUS-LACTIS ML3 TO ALTERNATING CONDITIONS OF GROWTH AND STARVATION** *ARCHIVES OF MICROBIOLOGY*
Kunji, E. R., UBBINK, T., Matin, A., Poolman, B., Konings, W. N.
1993; 159 (4): 372-379
- **SIGNIFICANT DISPERSED RECURRENT DNA-SEQUENCES IN THE ESCHERICHIA-COLI GENOME - SEVERAL NEW GROUPS** *JOURNAL OF MOLECULAR BIOLOGY*
Blaisdell, B. E., Rudd, K. E., Matin, A., Karlin, S.
1993; 229 (4): 833-848
- **Physiological responses of Lactococcus lactis ML3 to alternating conditions of growth and starvation.** *Archives of Microbiology*
Kunji ERS, Ubbink T, Matin A, Poolman B, Konings WN
1993; 159: 372
- **USE OF GLUCOSE STARVATION TO LIMIT GROWTH AND INDUCE PROTEIN-PRODUCTION IN ESCHERICHIA-COLI** *BIOTECHNOLOGY AND BIOENGINEERING*
TUNNER, J. R., Robertson, C. R., Schippa, S., Matin, A.
1992; 40 (2): 271-279
- **PHYSIOLOGY, MOLECULAR-BIOLOGY AND APPLICATIONS OF THE BACTERIAL STARVATION RESPONSE** *JOURNAL OF APPLIED BACTERIOLOGY*
Matin, A.
1992; 73: S49-S57
- **GENETICS OF BACTERIAL STRESS RESPONSE AND ITS APPLICATIONS** *7TH CONF ON BIOCHEMICAL ENGINEERING*
Matin, A.
NEW YORK ACAD SCIENCES.1992: 1-15
- **USE OF BACTERIAL STRESS PROMOTERS TO INDUCE BIODEGRADATION UNDER CONDITIONS OF ENVIRONMENTAL-STRESS** *INTERNATIONAL SYMP ON IN SITU AND ON-SITE BIORECLAMATION*
Little, C. D., Fraley, C. D., McCann, M. P., Matin, A.
BUTTERWORTH-HEINEMANN.1991: 493-498
- **MOLECULAR ANALYSIS OF THE STARVATION STRESS IN ESCHERICHIA-COLI** *SYMP ON NUTRIENT LIMITATION : GLOBAL RESPONSES AND PROKARYOTIC DEVELOPMENT*
Matin, A.
ELSEVIER SCIENCE BV.1990: 185-95
- **BIOENERGETICS PARAMETERS AND TRANSPORT IN OBLIGATE ACIDOPHILES** *BIOCHIMICA ET BIOPHYSICA ACTA*
Matin, A.
1990; 1018 (2-3): 267-270
- **KEEPING A NEUTRAL CYTOPLASM - THE BIOENERGETICS OF OBLIGATE ACIDOPHILES** *WORKSHOP ON ADAPTATION OF MICROORGANISMS TO EXTREME ENVIRONMENTS*
Matin, A.
ELSEVIER SCIENCE BV.1990: 307-18

- **RESISTANCE OF BACTERIAL SUBPOPULATIONS TO DISINFECTION BY CHLORINE DIOXIDE** *JOURNAL AMERICAN WATER WORKS ASSOCIATION*
Berg, J. D., HOFF, J. C., Roberts, P. V., Matin, A.
1988; 80 (9): 115-119
- **TWO-DIMENSIONAL GEL RESOLUTION OF POLYPEPTIDES SPECIFIC FOR AUTOTROPHIC GROWTH IN THIOBACILLUS-VERSUTUS** *JOURNAL OF APPLIED BACTERIOLOGY*
Read, D. L., Matin, A.
1987; 63 (5): 469-472
- **SYNTHESIS OF UNIQUE PROTEINS AT THE ONSET OF CARBON STARVATION IN ESCHERICHIA-COLI** *JOURNAL OF INDUSTRIAL MICROBIOLOGY*
Groat, R. G., Matin, A.
1986; 1 (2): 69-73
- **ETHANOL-PRODUCTION BY NITROGEN-DEFICIENT YEAST-CELLS IMMOBILIZED IN A HOLLOW-FIBER MEMBRANE BIOREACTOR** *APPLIED MICROBIOLOGY AND BIOTECHNOLOGY*
INLOES, D. S., Michaels, A. S., Robertson, C. R., Matin, A.
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