Stanford



Gilbert Chu

Professor of Medicine (Oncology) and of Biochemistry

Medicine - Oncology

NIH Biosketch available Online Curriculum Vitae available Online

CONTACT INFORMATION

- **Alternate Contact**

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Bio

ACADEMIC APPOINTMENTS

- Professor, Medicine - Oncology
- Professor, Biochemistry
- Member, Bio-X
- Member, Maternal & Child Health Research Institute (MCHRI)
- Member, Stanford Cancer Institute

HONORS AND AWARDS

- Oscar Salvatierra Award for Exceptional Service to Medical Students and the School of Medicine, Stanford University (2024)
- Kaiser Award for Preclinical Teaching, Stanford University (2020, 2015, 2007, 2003)
- Kaiser Award for Outstanding and Innovative Contributions to Medical Education, Stanford University (2020)
- Asian American Community Faculty Award, Stanford University (2018)
- Fellow, Division of Biological Physics, American Physical Society (2018)
- Lawrence H. Mathers Teaching Award, Stanford University (2014)
- Clinical Scientist Award for Translational Research, Burroughs-Wellcome Fund (1997-2002)
- Rita Allen Award, Rita Allen Foundation (1988-1993)
- Fellow, Jane Coffin Childs Memorial Fund (1984-1986)
- Henry Asbury Christian Award for Notable Scholarship, Harvard Medical School (1980)
- Giulio Racah Prize, International School of Subnuclear Physics, Erice, Italy (1973)
- Fellow, Woodrow Wilson National Fellowship Foundation (1967-1968)
- Phi Beta Kappa, Princeton University (1967)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Member, American Physical Society (1967 - present)

- Member, Sigma Xi (1975 - present)
- Member, American Association for the Advancement of Science (1987 - present)
- Member, Environmental Mutagenesis and Genomics Society (1997 - present)
- Member, American Society for Clinical Oncologists (1997 - present)
- Member, Society for Chinese Bioscientists in America (1999 - present)

PROFESSIONAL EDUCATION

- A.B., Princeton , Physics (1967)
- Ph.D., M.I.T. , Physics (1973)
- M.D., Harvard , Medicine (1980)

COMMUNITY AND INTERNATIONAL WORK

- Paul & Daisy Soros Fellowship for New Americans Selection Panel

PATENTS

- Thomas Veltman, Chun Tsai, Matthew Kanan, Gilbert Chu. "United States Patent 9,625,443 Rapid small volume detection of blood ammonia", Leland Stanford Junior University, Feb 11, 2014
- Gilbert Chu. "United States Patent 8,263,332 Mismatched end DNA ligase", Leland Stanford Junior University, Sep 11, 2012
- Gilbert Chu, Virginia Tusher, Jean Tang, Kerry Rieger, Wan Jen Hong, Robert Tibshirani. "United States Patent 7,465,542 Methods and compositions for determining treatment toxicity", Leland Stanford Junior University, Dec 16, 2008
- Gilbert Chu, Robert Tibshirani, Virginia Tusher. "United States Patent 7,363,165 Significance analysis of microarrays", Leland Stanford Junior University, Apr 22, 2008
- Gilbert Chu, Douglas Vollrath, Ronald Davis. "United States Patent 5,165,898 Electrophoresis using contour-clamped electric fields", Leland Stanford Junior University, Nov 24, 1992

LINKS

- My Lab site: https://chulab.stanford.edu/
- Education and Teaching: https://chulab.stanford.edu/teaching
- Research Methods: https://chulab.stanford.edu/methods
- Molecular Foundations of Medicine videos: https://lagunita.stanford.edu/courses/Medicine/MolFoundations/SelfPaced/about
- Molecular Foundations videos: https://online.stanford.edu/courses/som-y0016-molecular-foundations-medicine

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

After shuttering the wet lab, we have focused on: a point-of-care device to measure blood ammonia and prevent brain damage; a human protein complex that juxtaposes and joins DNA ends for repair and V(D)J recombination; and strategies for teaching students and for reducing selection bias in educational programs.

To understand how cells repair DNA damaged by ultraviolet radiation (UV), we identified UV-damaged DNA binding activity, which enhances nucleotide excision repair and is mutated in xeroderma pigmentosum group E.

To understand how cells repair DNA damaged by ionizing radiation, we identified and studied the proteins required for non-homologous end joining, which repairs double-strand breaks produced by ionizing radiation and V(D)J recombination.

To interpret the massive data-sets in gene expression profiles, we invented the algorithms SAM (Significance Analysis of Microarrays) and PAM (Prediction Analysis of Microarrays).

In an interdisciplinary collaboration, we invented a point-of-care device to measure blood ammonia for diagnosis and management of patients with inborn errors of metabolism, liver disease, and cancer-associated chemobrain.

Teaching

COURSES

2026-27

- Perspectives on Cancer Care: INDE 242 (Win)

2025-26

- Perspectives on Cancer Care: INDE 242 (Win)

2024-25

- Perspectives on Cancer Care: INDE 242 (Win)

2023-24

- Molecular Foundations of Medicine: BIOC 205 (Aut)
- Perspectives on Cancer Care: INDE 242 (Win)

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Biochemistry (PhD Program)
- Biophysics (PhD Program)
- Cancer Biology (PhD Program)
- Immunology (PhD Program)
- Oncology (Fellowship Program)

Publications

PUBLICATIONS

- **Point-of-Care Analysis of Blood Ammonia with a Gas-Phase Sensor.** *ACS sensors*
  Veltman, T. R., Tsai, C. J., Gomez-Ospina, N., Kanan, M. W., Chu, G.
  2020
- **Complete and Prolonged Response to Immune Checkpoint Blockade in POLE-Mutated Colorectal Cancer** *JCO PRECISION ONCOLOGY*
  Silberman, R., Steiner, D. F., Lo, A. A., Gomez, A., Zehnder, J. L., Chu, G., Suarez, C. J.
  2019; 3: 1–5
- **Hyperammonemia after capecitabine associated with occult impairment of the urea cycle** *CANCER MEDICINE*
  Chu, G., Salzman, J.
  2019; 8 (5): 1996–2004
- **Cooperative Assembly of a Protein-DNA Filament for Nonhomologous End Joining** *JOURNAL OF BIOLOGICAL CHEMISTRY*
  Tsai, C. J., Chu, G.
  2013; 288 (25): 18110-18120
- **Cernunnos/XLF promotes the ligation of mismatched and noncohesive DNA ends** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Tsai, C. J., Kim, S. A., Chu, G.

2007; 104 (19): 7851-7856

- **Processing of DNA for nonhomologous end-joining by cell-free extract** *EMBO JOURNAL*
  Budman, J., Chu, G.
  2005; 24 (4): 849-860
- **Significance analysis of microarrays applied to the ionizing radiation response** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Tusher, V. G., Tibshirani, R., Chu, G.
  2001; 98 (9): 5116-5121
- **Implementation of a cloud-based electronic patient-reported outcome (ePRO) platform in patients with advanced cancer.** *Journal of patient-reported outcomes*
  Generalova, O., Roy, M., Hall, E., Shah, S. A., Cunanan, K., Fardeen, T., Velazquez, B., Chu, G., Bruzzone, B., Cabot, A., Fisher, G. A., Srinivas, S., Fan, et al
  2021; 5 (1): 91
- **Economics of alternative dosing strategies for pembrolizumab and nivolumab at a single academic cancer center.** *Cancer medicine*
  Hall, E., Zhang, J., Kim, E. J., Hwang, G., Chu, G., Bhatia, S., Reddy, S.
  2020
- **Complete and Prolonged Response to Immune Checkpoint Blockade in POLE-Mutated Colorectal Cancer.** *JCO precision oncology*
  Silberman, R., F Steiner, D., Lo, A. A., Gomez, A., Zehnder, J. L., Chu, G., Suarez, C. J.
  2019; 3: 1-5
- **Cancer risk after use of recombinant bone morphogenetic protein-2 for spinal arthrodesis.** *journal of bone and joint surgery. American volume*
  Carragee, E. J., Chu, G., Rohatgi, R., Hurwitz, E. L., Weiner, B. K., Yoon, S. T., Comer, G., Kopjar, B.
  2013; 95 (17): 1537-1545
- **Electrophoretic mobility shift assays for protein-DNA complexes involved in DNA repair.** *Methods in molecular biology (Clifton, N.J.)*
  Tsai, C., Smider, V., Hwang, B. J., Chu, G.
  2012; 920: 53-78
- **An Information Theoretic, Microfluidic-Based Single Cell Analysis Permits Identification of Subpopulations among Putatively Homogeneous Stem Cells** *PLOS ONE*
  Glotzbach, J. P., Januszyk, M., Vial, I. N., Wong, V. W., Gelbard, A., Kalisky, T., Thangarajah, H., Longaker, M. T., Quake, S. R., Chu, G., Gurtner, G. C.
  2011; 6 (6)
- **Local false discovery rate facilitates comparison of different microarray experiments** *NUCLEIC ACIDS RESEARCH*
  Hong, W., Tibshirani, R., Chu, G.
  2009; 37 (22): 7483-7497
- **Here Comes the Sun: Recognition of UV-Damaged DNA** *CELL*
  Chu, G., Yang, W.
  2008; 135 (7): 1172-1174
- **Crystal structure of human XLF: A twist in nonhomologous DNA end-joining** *MOLECULAR CELL*
  Andres, S. N., Modesti, M., Tsai, C. J., Chu, G., Junop, M. S.
  2007; 28 (6): 1093-1101
- **Processing of DNA for nonhomologous end-joining is controlled by kinase activity and XRCC4/Ligase IV** *JOURNAL OF BIOLOGICAL CHEMISTRY*
  Budman, J., Kim, S. A., Chu, G.
  2007; 282 (16): 11950-11959
- **Electrophoretic mobility shift assays to study protein binding to damaged DNA.** *Methods in molecular biology (Clifton, N.J.)*
  Smider, V., Hwang, B. J., Chu, G.
  2006; 314: 323-344
- **Assays for nonhomologous end joining in extracts** *DNA REPAIR, PT A*

Budman, J., Chu, G.
2006; 408: 430-444

- **Immune signatures in follicular lymphoma** *NEW ENGLAND JOURNAL OF MEDICINE*
  Hong, W. J., Warnke, R., Chu, G.
  2005; 352 (14): 1496-1496
- **Toxicity from radiation therapy associated with abnormal transcriptional responses to DNA damage** *Annual Scientific Meeting on Exporing Genomics in Radiation Oncology*
  Rieger, K. E., Hong, W. J., Tusher, V. G., Tang, J., Tibshirani, R., Chu, G.
  ELSEVIER IRELAND LTD.2004: S29–S29
- **Toxicity from radiation therapy associated with abnormal transcriptional responses to DNA damage** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Rieger, K. E., Hong, W. J., Tusher, V. G., Tang, J., Tibshirani, R., Chu, G.
  2004; 101 (17): 6635-6640
- **Portrait of transcriptional responses to ultraviolet and ionizing radiation in human cells** *NUCLEIC ACIDS RESEARCH*
  Rieger, K. E., Chu, G.
  2004; 32 (16): 4786-4803
- **Contributions of ATM mutations to familial breast and ovarian cancer** *CANCER RESEARCH*
  Thorstenson, Y. R., Roxas, A., Kroiss, R., Jenkins, M. A., Yu, K. M., Bachrich, T., Muhr, D., Wayne, T. L., Chu, G., Davis, R. W., Wagner, T. M., Oefner, P. J.
  2003; 63 (12): 3325-3333
- **Class prediction by nearest shrunken centroids, with applications to DNA microarrays** *STATISTICAL SCIENCE*
  Tibshirani, R., Hastie, T., Narasimhan, B., Chu, G.
  2003; 18 (1): 104-117
- **Interaction between UV-damaged DNA binding activity proteins and the c-Abl tyrosine kinase** *JOURNAL OF BIOLOGICAL CHEMISTRY*
  Cong, F., Tang, J., Hwang, B. J., Vuong, B. Q., Chu, G., Goff, S. P.
  2002; 277 (38): 34870-34878
- **Xeroderma pigmentosum complementation group E and UV-damaged DNA-binding protein** *DNA REPAIR*
  Tang, J., Chu, G.
  2002; 1 (8): 601-616
- **Synapsis of DNA ends by DNA-dependent protein kinase** *EMBO JOURNAL*
  DeFazio, L. G., Stansel, R. M., Griffith, J. D., Chu, G.
  2002; 21 (12): 3192-3200
- **Diagnosis of multiple cancer types by shrunken centroids of gene expression** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Tibshirani, R., Hastie, T., Narasimhan, B., Chu, G.
  2002; 99 (10): 6567-6572
- **p53 binds and activates the xeroderma pigmentosum DDB2 gene in humans but not mice** *MOLECULAR AND CELLULAR BIOLOGY*
  Tan, T., Chu, G.
  2002; 22 (10): 3247-3254
- **Global genomic repair and p53 in a dance after DNA damage** *CANCER BIOLOGY & THERAPY*
  Chu, G.
  2002; 1 (2): 150-151
- **Supervised learning from microarray data** *15th Biannual Conference on Computational Statistics (COMPSTAT)*
  Hastie, T., Tibshirani, R., Narasimhan, B., Chu, G.
  PHYSICA-VERLAG GMBH & CO.2002: 67–77
- **Xeroderma pigmentosum p48 gene enhances global genomic repair and suppresses UV-induced mutagenesis** *MOLECULAR CELL*
  Tang, J. Y., Hwang, B. J., Ford, J. M., Hanawalt, P. C., Chu, G.

2000; 5 (4): 737-744

- **Activation of DNA-dependent protein kinase by single-stranded DNA ends** *JOURNAL OF BIOLOGICAL CHEMISTRY*
  Hammarsten, O., DeFazio, L. G., Chu, G.
  2000; 275 (3): 1541-1550
- **Structure of DNA-dependent protein kinase: implications for its regulation by DNA** *EMBO JOURNAL*
  Leuther, K. K., Hammarsten, O., Kornberg, R. D., Chu, G.
  1999; 18 (5): 1114-1123
- **Expression of the p48 xeroderma pigmentosum gene is p53-dependent and is involved in global genomic repair** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Hwang, B. J., Ford, J. M., Hanawalt, P. C., Chu, G.
  1999; 96 (2): 424-428
- **The use of electrophoretic mobility shift assays to study DNA repair.** *Methods in molecular biology (Clifton, N.J.)*
  Hwang, B. J., Smider, V., Chu, G.
  1999; 113: 103-120
- **Failure of hairpin-ended and nicked DNA to activate DNA-dependent protein kinase: Implications for V(D)J recombination** *MOLECULAR AND CELLULAR BIOLOGY*
  Smider, V., Rathmell, W. K., Brown, G., Lewis, S., Chu, G.
  1998; 18 (11): 6853-6858
- **p48 activates a UV-damaged-DNA binding factor and is defective in xeroderma pigmentosum group E cells that lack binding activity** *MOLECULAR AND CELLULAR BIOLOGY*
  Hwang, B. J., Toering, S., FRANCKE, U., Chu, G.
  1998; 18 (7): 4391-4399
- **DNA-dependent protein kinase: DNA binding and activation in the absence of Ku** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Hammarsten, O., Chu, G.
  1998; 95 (2): 525-530
- **Double strand break repair** *JOURNAL OF BIOLOGICAL CHEMISTRY*
  Chu, G.
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- **The end-joining reaction in V(D)J recombination.** *Seminars in immunology*
  Smider, V., Chu, G.
  1997; 9 (3): 189-197
- **DNA-dependent protein kinase is not required for accumulation of p53 or cell cycle arrest after DNA damage** *CANCER RESEARCH*
  Rathmell, W. K., Kaufmann, W. K., Hurt, J. C., Byrd, L. L., Chu, G.
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- **Internal sequence analysis of proteins eluted from polyacrylamide gels** *JOURNAL OF CHROMATOGRAPHY B-BIOMEDICAL APPLICATIONS*
  Hwang, B. J., SMITH, A. J., Chu, G.
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- **Trichloroacetic acid precipitation by ultracentrifugation to concentrate dilute protein in viscous solution** *BIOTECHNIQUES*
  Hwang, B. J., Chu, G.
  1996; 20 (6): 982-?
- **Xeroderma pigmentosum, Cockayne syndrome and trichothiodystrophy: Do the genes explain the diseases?** *TRENDS IN GENETICS*
  Chu, G., Mayne, L.
  1996; 12 (5): 187-192
- **Ku86 defines the genetic defect and restores X-ray resistance and V(D)J recombination to complementation group 5 hamster cell mutants** *MOLECULAR AND CELLULAR BIOLOGY*
  Errami, A., Smider, V., Rathmell, W. K., He, D. M., Hendrickson, E. A., Zdzienicka, M. Z., Chu, G.

1996; 16 (4): 1519-1526

- **Isolation of a cDNA encoding a UV-damaged DNA binding factor defective in xeroderma pigmentosum group E cells** *MUTATION RESEARCH-DNA REPAIR*
  Hwang, B. J., Liao, J. C., Chu, G.
  1996; 362 (1): 105-117

- **Role of the Ku autoantigen in V(D)J recombination and double-strand break repair** *MOLECULAR ANALYSIS OF DNA REARRANGEMENTS IN THE IMMUNE SYSTEM*
  Chu, G.
  1996; 217: 113-132

- **A NOVEL ROLE FOR DNA PHOTOLYASE - BINDING TO DNA DAMAGED BY DRUGS IS ASSOCIATED WITH ENHANCED CYTOTOXICITY IN SACCHAROMYCES-CEREVISIAE** *MOLECULAR AND CELLULAR BIOLOGY*
  Fox, M. E., Feldman, B. J., Chu, G.
  1994; 14 (12): 8071-8077

- **RESTORATION OF X-RAY RESISTANCE AND V(D)J RECOMBINATION IN MUTANT-CELLS BY KU CDNA** *SCIENCE*
  Smider, V., Rathmell, W. K., Lieber, M. R., Chu, G.
  1994; 266 (5183): 288-291

- **XERODERMA-PIGMENTOSUM GROUP-E BINDING-FACTOR RECOGNIZES A BROAD-SPECTRUM OF DNA-DAMAGE** *MUTATION RESEARCH-FUNDAMENTAL AND MOLECULAR MECHANISMS OF MUTAGENESIS*
  Payne, A., Chu, G.
  1994; 310 (1): 89-102

- **INVOLVEMENT OF THE KU AUTOANTIGEN IN THE CELLULAR-RESPONSE TO DNA DOUBLE-STRAND BREAKS** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Rathmell, W. K., Chu, G.
  1994; 91 (16): 7623-7627

- **A DNA END-BINDING FACTOR INVOLVED IN DOUBLE-STRAND BREAK REPAIR AND V(D)J RECOMBINATION** *MOLECULAR AND CELLULAR BIOLOGY*
  Rathmell, W. K., Chu, G.
  1994; 14 (7): 4741-4748

- **CELLULAR-RESPONSES TO CISPLATIN - THE ROLES OF DNA-BINDING PROTEINS AND DNA-REPAIR** *JOURNAL OF BIOLOGICAL CHEMISTRY*
  Chu, G.
  1994; 269 (2): 787-790

- **MASSIVE CISPLATIN OVERDOSE BY ACCIDENTAL SUBSTITUTION FOR CARBOPLATIN - TOXICITY AND MANAGEMENT** *CANCER*
  Chu, G., MANTIN, R., Shen, Y. M., BASKETT, G., Sussman, H.
  1993; 72 (12): 3707-3714

- **PURIFICATION AND CHARACTERIZATION OF A HUMAN PROTEIN THAT BINDS TO DAMAGED DNA** *BIOCHEMISTRY*
  Hwang, B. J., Chu, G.
  1993; 32 (6): 1657-1666

- **Elastic Bag Model of One-Dimensional Pulsed-Field Gel Electrophoresis (ODPFGE).** *Methods in molecular biology (Clifton, N.J.)*
  Noolandi, J., Turmel, C.
  1992; 12: 451-67

- **BAG MODEL FOR DNA MIGRATION DURING PULSED-FIELD ELECTROPHORESIS** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Chu, G.
  1991; 88 (24): 11071-11075

- **ENHANCED DETECTION OF THE T(14-18) TRANSLOCATION IN MALIGNANT-LYMPHOMA USING PULSED-FIELD GEL-ELECTROPHORESIS** *BLOOD*
  Zelenetz, A. D., Chu, G., Galili, N., Bangs, C. D., Horning, S. J., Donlon, T. A., Cleary, M. L., Levy, R.

1991; 78 (6): 1552-1560

- **PULSED-FIELD ELECTROPHORESIS OF MEGABASE-SIZED DNA** *MOLECULAR AND CELLULAR BIOLOGY*
  Gunderson, K., Chu, G.
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- **SEPARATION OF LARGE DNA BY A VARIABLE-ANGLE CONTOUR-CLAMPED HOMOGENEOUS ELECTRIC-FIELD APPARATUS** *ANALYTICAL BIOCHEMISTRY*
  Chu, G., Gunderson, K.
  1991; 194 (2): 439-446
- **CISPLATIN-RESISTANT CELLS EXPRESS INCREASED LEVELS OF A FACTOR THAT RECOGNIZES DAMAGED DNA** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Chu, G., Chang, E.
  1990; 87 (9): 3324-3327
- **How cells recognize damaged DNA: clues from xeroderma pigmentosum and yeast.** *Progress in clinical and biological research*
  Chu, G., Chang, E., Patterson, M.
  1990; 340A: 275-282
- **HOW CELLS RECOGNIZE DAMAGED DNA - CLUES FROM XERODERMA-PIGMENTOSUM AND YEAST** *5TH INTERNATIONAL CONF ON ENVIRONMENTAL MUTAGENS*
  Chu, G., Chang, E., Patterson, M.
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  Patterson, M., Chu, G.
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- **PULSED FIELD ELECTROPHORESIS IN CONTOUR-CLAMPED HOMOGENEOUS ELECTRIC-FIELDS FOR THE RESOLUTION OF DNA BY SIZE OR TOPOLOGY** *ELECTROPHORESIS*
  Chu, G.
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- **XERODERMA PIGMENTOSUM GROUP-E CELLS LACK A NUCLEAR FACTOR THAT BINDS TO DAMAGED DNA** *SCIENCE*
  Chu, G., Chang, E.
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  Chu, G., Hayakawa, H., Berg, P.
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- **SEPARATION OF LARGE DNA-MOLECULES BY CONTOUR-CLAMPED HOMOGENEOUS ELECTRIC-FIELDS** *SCIENCE*
  Chu, G., Vollrath, D., Davis, R. W.
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- **RAD3 GENE OF SACCHAROMYCES-CEREVISIAE - NUCLEOTIDE-SEQUENCE OF WILD-TYPE AND MUTANT ALLELES, TRANSCRIPT MAPPING, AND ASPECTS OF GENE-REGULATION** *MOLECULAR AND CELLULAR BIOLOGY*
  Naumovski, L., Chu, G., Berg, P., Friedberg, E. C.
  1985; 5 (1): 17-26
- **RAPID ASSAY FOR DETECTION OF ESCHERICHIA-COLI XANTHINE-GUANINE PHOSPHORIBOSYLTRANSFERASE ACTIVITY IN TRANSDUCED CELLS** *NUCLEIC ACIDS RESEARCH*
  Chu, G., Berg, P.
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- **SV40 DNA transfection of cells in suspension: analysis of efficiency of transcription and translation of T-antigen.** *Gene*
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  Chu, G., Sharp, P. A.
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- **The kinetics of target cell lysis by cytotoxic T lymphocytes: a description by Poisson statistics.** *Journal of immunology (Baltimore, Md. : 1950)*
  Chu, G. n.
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- **3-DIMENSIONAL IMAGING IN POSITRON CAMERA USING FOURIER TECHNIQUES** *PHYSICS IN MEDICINE AND BIOLOGY*
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  1977; 22 (2): 245-265

PRESENTATIONS

- How to Give a Talk (May 24, 2019)