BIOGRAPHICAL SKETCH

NAME	POSITION TITLE
Hanawalt, Philip C.	Professor of Biology
eRA COMMONS USER NAME Hanawalt, Philip	

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
Deep Springs College, CA	---	1949-1950	Liberal Arts
Oberlin College, OH	B.A.	1954	Physics
Yale University, CT	M.S., Ph.D.	1955, 1959	Physics, Biophysics
University of Copenhagen, Denmark	Postdoc	1958-1960	Bacterial Physiology
California Institute of Technology, CA	Postdoc	1960-1961	Molecular Biology

Positions at Stanford University

1961-65 Research Biophysicist and Lecturer
1965-70 Associate Professor of Biology 1968-85 Director, Biophysics Graduate Program
1970- Professor of Biology 1979- Professor of Dermatology (Joint appointment in Med School)
1982-89 Chairman, Department of Biological Sciences
1997-02 Howard H. and Jessie T. Watkins University Professor
2009- The Morris Herzstein Professorship in Biology

Other Experience, Professional Memberships, Advisory and Editorial Boards (partial list)

1966-70 Physiological Chemistry Study Section, NIH
1981-84 Chemical Pathology Study Section, NIH
1982-93 Managing Editor *DNA Repair* (*Mutation Research*)
1985 Predoctoral Fellowship Review Panel, National Science Foundation (NSF)
1987-90 Board of Scientific Counselors, Division of Biometry and Risk Assessment, NIEHS, NIH
1993-94 President, Environmental Mutagen Society (EMS)
1994-97 Board of Directors, American Association for Cancer Research (AACR)
1994-98 Scientific Advisory Board, Office of Environmental Health Hazard Assessment, California EPA
1995-01 Board of Reviewing Editors, *Science*
1995-01 Toxicology Advisory Committee, The Burroughs-Wellcome Fund (Chair 1997-2000)
1995-99 Scientific Advisory Board, Fogarty International Center, NIH
1995-98 Board on Radiation Effects Research, NAS/NRC Commission on Life Sciences
1996-98 External Review Working Group, NIEHS, NIH
1996 Chair, Gordon Conference on Mutagenesis
1998-01 Council for Extramural Grants, American Cancer Society (ACS)
1999 Chair, Gordon Conference on Mammalian DNA Repair
2001 Genetics Study Section Boundaries Team, CSR, NIH
2001- External Advisory Bd, Prog. on Struct. Biol. of DNA Repair (SBDR) Lawrence Berkeley Lab, CA
2001 External visiting committee, NICHD, NIH
2003- Senior Editor, *Cancer Research*
2003- Editorial Board Member, *Proceedings of the National Academy of Sciences U.S.A.*
2005- International Advisory Board, Chulabhorn Research Inst., Bangkok, Thailand
2005- Member, Special Conference Committee, AACR
2006 Working Group on Integrated Translational Research on DNA Repair, NIEHS
2009 NCI intramural site visit committee member, NIH

Professional Recognition and Honors (from 1989)

1989 Elected Member, National Academy of Sciences, USA.
1991 Excellence in Teaching Award, Northern California Chapter, Phi Beta Kappa
1992 Annual Award for Excellence in Basic Science, EMS
1992 Peter and Helen Bing Award for Distinguished Teaching, Stanford University
1993 Elected Fellow, American Academy of Microbiology
1996 Annual Research Award, American Society for Photobiology

1997 International Mutation Research Award for Excellence in Scientific Achievement
1997 Honorary Doctor of Science, Oberlin College, Ohio
1999 Princess Takamatsu Cancer Foundation Annual Lectureship, Japan
2001 Annual Student Mentoring Award, EMS
2001 Elected Foreign Associate, European Molecular Biology Organization (EMBO)
2002 J.B. Little Award in Radiation Sciences, Harvard School of Public Health, Boston
2003 Rothschild-Yvette Mayent Institut Curie Award and Lectureship, Paris, France
2004 Keynote Lecture, ASM International Conference on DNA Repair and Mutagenesis, Bermuda
2005 President/Organizer, 9th Int. Conference on Environmental Mutagens, San Francisco
2005 Special Issue: Mechanisms of DNA Repair, *Mutation Research* v577, dedicated to P.C..Hanawalt
2006 Doctor *Honoris Causa*, University of Bio Bio, Concepcion, Chile
2007 Centennial Lecture, "Sunrise Session", 99th AACR Annual Meeting, Los Angeles
2007 Visiting Scholar (Oct-Nov), Graduate School of Frontier BioSciences, Osaka University, Japan
2008 Elected Fellow, American Academy of Arts and Sciences
2008 Doctor *Honoris Causa*, University of Seville, Spain
2009 Keynote Lecture, 11th Annual Midwest DNA Repair Symposium, Ann Arbor, MI
2009 Keynote Lecture, Symp. on DNA Repair and Human Health, Ctr for Integrative Genetics, Lausanne
2009 Keynote Lecture, 10th Int. Conference on Environmental Mutagens, Florence, Italy

Selected peer-reviewed publications from 467 total (incl. those without co-authorship)

Hanawalt PC. (1959) Use of P-32 in microassay for nucleic acid synthesis in *E. coli. Science* 130:386-387.

Hanawalt PC and Setlow RB. (1960) Effect of monochromatic ultraviolet light on macromolecular synthesis in *E.coli Biochim Biophys Acta* 41:283-294.

Maaløe O, **Hanawalt PC.** (1961) Thymine deficiency and normal DNA replication cycle I. *J Mol Biol* 3:144-155.

Pettijohn D, **Hanawalt PC**. (1964). Evidence for repair-replication of ultraviolet damaged DNA in bacteria. *J Mol Biol.* 9:395-410.

Zolan ME, Cortopassi GA, Smith CA and **Hanawalt PC**. (1982). Deficient repair of chemical adducts in alpha DNA of monkey cells. *Cell* 28:613-619.

Nakayama H, Nakayama K, Nakayama R, Irino N, Nakayama Y, **Hanawalt PC** (1984) Isolation and genetic characterization of a thymineless death-resistant mutant of *Escherichia coli* K-12: Identification of a new mutation (recQ1) that blocks the RecF recombination pathway. *Mol Gen Genet* 195:474-480.

Bohr VA, Smith CA, Okumoto DS, **Hanawalt PC**. (1985). DNA repair in an active gene: Removal of pyrimidine dimers from DHFR gene of CHO cells is much more efficient than in the genome overall. *Cell* 40:359-369.

Madhani HD, Bohr VA and **Hanawalt PC**. (1986). Differential DNA repair in a transcriptionally active and inactive protooncogene: c-ABL and c-MOS. *Cell* 45:417-422.

Mellon I, Spivak G, and **Hanawalt PC**. (1987). Selective removal of transcription blocking DNA damage from the transcribed strand of the mammalian DHFR gene. *Cell* 51:241-249.

Vos J-M, **Hanawalt PC**. (1987). Processing of psoralen adducts in an active gene: Repair and replication of DNA containing monoadducts and interstrand cross-links. *Cell* 50:789-799.

Mellon I and **Hanawalt PC**. (1989). Induction of the *Escherichia coli* lactose operon selectively increases repair of its transcribed DNA strand. *Nature* 342:95-98.

Spivak G and **Hanawalt PC**. (1992). Translesion DNA synthesis in the DHFR domain of UV-irradiated CHO cells. *Biochemistry* 31:6794-6800.

Ford JM, **Hanawalt PC**. (1997). Expression of wild type p53 is required for efficient global nucleotide excision repair in UV-irradiated human fibroblasts. *J Biol Chem* 272:28073-28080.

Tornaletti S, Reines D, **Hanawalt PC**. (1999). Structural characterization of RNA polymerase II complexes arrested by a cyclobutane pyrimidine dimer in the template DNA. *J Biol Chem* 274:24124-24130.

Eisen J, **Hanawalt PC**. (1999). A phylogenomic study of DNA repair genes, proteins, and processes. *Mut Res:DNA Repair* 435:171-213.

Courcelle J, **Hanawalt PC.** (1999) RecQ and RecJ process blocked replication forks prior to the resumption of replication in UV-irradiated *Escherichia coli*. *Molecular Gen Genet.* 262:543-551

Courcelle J, Khodursky A, Peter B, Brown PO, and **Hanawalt PC**. (2001). Comparative gene expression profiles following UV exposure in wild type and SOS deficient *Escherichia coli. Genetics* 158:41-64.

Tornaletti S, Maeda L, Lloyd DR, Reines D, **Hanawalt PC**. (2001). Effect of thymine glycol on transcription elongation by T7 RNA polymerase and mammalian RNAPII. *J. Biol Chem* 276:45367-45371.

Hanawalt PC. (2002). Subpathways of NER and their regulation. *Oncogene* 21: 8949-8956.
Spivak G, Itoh T, Matsunaga T, Nikaido O, **Hanawalt PC**. and Yamaizumi M. (2002). Ultraviolet-sensitive syndrome cells are defective in transcription-coupled repair of cyclobutane pyrimidine dimers. *DNA Repair* 1:629-643.
Tornaletti S, Patrick SM, Turchi JJ, **Hanawalt PC**. (2003). Behavior of T7 RNA polymerase and mammalian RNA polymerase II at site-specific cisplatin adducts in the template DNA. *J. Biol. Chem*. 278:35791-35797.
Hanawalt PC, Ford JM, Lloyd DR. (2003). Functional characterization of global genomic DNA repair and its implications for cancer. *Mutation Research* 544:107-114.
Courcelle J, **Hanawalt PC**. (2003). RecA-dependent recovery of arrested DNA replication forks. *Annu. Reviews of Genetics* 37:611-646.
Cline SD, **Hanawalt PC**. (2003). "Who's on first in the cellular response to DNA damage?" *Nature Reviews: Molec.Cell Biol.* 4:361-372.
Tornaletti S, Maeda LS, Kolodner RD, **Hanawalt PC**. (2004). Effect of 8-oxoguanine on transcription elongation by T7RNA polymerase and mammalian RNA polymerase II. *DNA Repair* 3:483-494.
Cline S, Riggins JN, Tornaletti S, Marnett LJ, **Hanawalt PC**. (2004). Malondialdehyde adducts in DNA arrest transcription by T7 RNA polymerase and mammalian RNA polymerase II. *PNAS* 101:7275-7280.
Hanawalt, PC. (2004). Density matters: the semiconservative replication of DNA (Perspective accompanying re-publication of the classic 1958 Meselson/Stahl paper). *PNAS* 101:17889-17894.
Svetlova S, Solovjeva L, Blasius M, Shevelev I, Hubscher U, **Hanawalt PC**, Tomilin N. (2005). Differential incorporation of halogenated deoxyuridines during UV-induced DNA repair synthesis in human cells. *DNA Repair* 4:359-366.
Kalogeraki V, Tornaletti S, Cooper PK, **Hanawalt PC**. (2005). Comparative TFIIS-mediated transcript cleavage by mammalian RNA polymerase II arrested at a lesion in different transcription systems. *DNA Repair* 4:1075-1087.
Morganroth, P, **Hanawalt PC**. (2006). Role of DNA Replication and Repair in Thymineless Death in *Escherichia Coli*. J. Bacteriology 188:5286-5288.
Spivak G, **Hanawalt PC**. (2006). Host cell reactivation of plasmids containing oxidative DNA lesions is defective in Cockayne syndrome but normal in UV-sensitive syndrome fibroblasts. *DNA Repair* 5:13-22.
Spivak G, Pfeifer GP, **Hanawalt PC**. (2006). *In vivo* assays for transcription-coupled repair. (eds. Judith L Campbell & Paul Modrich) *Methods in Enzymology: DNA Repair* 408:223-246.
Wang Y, Sheppard TL, Tornaletti S, Maeda LS, **Hanawalt PC**. (2006). Transcriptional inhibition by an oxidized abasic site in DNA. *Chemical Research in Toxicology* 19:234-241.
Tornaletti S, Maeda L, **Hanawalt PC**. (2006). Transcription arrest at an abasic site in the transcribed strand of template DNA. *Chem. Res. Toxicology* 19:1215-1220.
Cline S, **Hanawalt PC**. (2006). Topoisomerase deficiencies subtly enhance global genomic repair of ultraviolet-induced DNA damage in *Saccharomyces cerevisiae*. *DNA Repair* 5:611-617.
Hanawalt PC. (2006). Leading Edge Commentary. Research Collaborations: Trial, Trust, and Truth. *Cell* 126:823-825.
Nouspikel T, **Hanawalt PC**. (2006). Impaired nucleotide excision repair upon macrophage differentiation is corrected by E1 ubiquitin-activating enzyme. *PNAS* 103:16188-16193.
Nouspikel T, Hyka-Nouspikel N, **Hanawalt PC**. (2006). Transcription domain-associated repair in human cells. *Cell Molec. Biol*. 26:8722-8730.
Hsu P, **Hanawalt PC**, Nouspikel T. (2007). Nucleotide excision repair phenotype of human acute myeloid leukemia cell lines at various stages of differentiation. *Mutation Research* 614:3-15.
Ganesan AK, Savery N, Smith A, Zamos P, **Hanawalt, PC**. (2007) Transcription coupled nucleotide excision repair in *Escherichia coli* can be affected by changing the arginine at position 529 of the beta subunit of RNA polymerase. *DNA Repair* 6:434-440.
Belotserkovskii BP, DeSilva E, Tornaletti S, Wang G, Vasquez KM, **Hanawalt PC.** (2007) A triplex-forming sequence from the human c-MYC promoter interferes with DNA transcription.*J.Biol.Chem.*282:32433-441.
Hanawalt PC. (2007) Paradigms for the Three Rs: DNA Replication, Recombination and Repair. (Invited Perspective) *Molecular Cell* 28:702-707.
Tornaletti S, Park-Snyder S, **Hanawalt PC.** (2008) G4-forming sequences in the non-transcribed DNA strand pose blocks to T7 RNA polymerase and mammalian RNA polymerase II. *J Biol Chem.* 283:12756-12762.

Hanawalt PC. (2008) Emerging links between premature aging and defective DNA repair. (Invited Perspective) *Mechanisms of Aging and Development* 129:503-505.

Ditlevson J V, Tornaletti S. Belotserkovskii BP, Teijeiro V, Wang G, Vasquez KM, **Hanawalt PC**. (2008), Inhibitory Effect of a Short Z-DNA Forming Sequence on Transcription Elongation by T7 RNA Polymerase. *Nucleic Acids Research* 36:3163-3170.

Hanawalt PC, Spivak G, (2008). Transcription-coupled DNA repair: two decades of progress and surprises. *Nature Reviews Mol. Cell Biol*. 9: 958-970.

Spivak G, Cox RA, **Hanawalt PC**. (2009) New applications of the Comet assay: Comet-FISH and transcription coupled DNA repair. *Mutat.Res.* 681: 44 – 50.

Belotserkovskii BP, **Hanawalt PC**. (2009) Peptide nucleic acid (PNA) binding and its effect on *in vitro* transcription in Friedreich's ataxia triplet repeats. *Molec. Carcinogenesis* 48:299-308.

Vasquez KM, **Hanawalt PC**. (2009) Intrinsic genomic instability from naturally occurring DNA structures:An introduction to the Special Issue *Molec. Carcinogenesis* 48:271-272.

Nardo T, Oneda R, Spivak G, Vaz B, Mortier L, Thomas P, Orioli D, Laugel V, Stary A, **Hanawalt PC**, Sarasin A, Stefanini M. (2009) A UV-sensitive syndrome patient with a specific CSA mutation reveals separable roles for CSA in response to UV and oxidative DNA damage. *PNAS* 106:6209-6214.