CURRICULUM VITAE

AMATO J. GIACCIA, Ph.D.
Jack, Lulu and Sam Willson Professor of Cancer Biology
Department of Radiation Oncology
Division of Radiation Biology
Stanford University School of Medicine
CCSR-South, Room 1255
269 Campus Drive
Stanford, CA 94305-5152
(650) 723-7366
giaccia@stanford.edu

Date of Birth

October 8, 1958

Education

1980	Lafayette College, Easton, PA Biology	B.A.
1989	University of Pennsylvania, Philadelphia, PA Pathology/Molecular Biology	Ph.D.

Postdoctoral Training

1989–1991	Research Associate Department of Radiation Oncology, Stanford University, Stanford, CA
1991–1992	Senior Research Associate Department of Radiation Oncology, Stanford University, Stanford, CA

Academic Appointments/Teaching Experience

1992–present	Graduate Group in Cancer Biology Stanford University, Stanford, CA
1992–present	Graduate Group in Biophysics Stanford University, Stanford, CA
1992–1999	Assistant Professor Department of Radiation Oncology, Stanford University, Stanford, CA
1999–2003	Associate Professor (with tenure) Department of Radiation Oncology, Stanford University, Stanford, CA
2001–2003	Associate Professor (by courtesy) Department of Gynecology and Obstetrics, Stanford University, Stanford, CA
2003–present	Professor Department of Radiation Oncology, Stanford University, Stanford, CA
2003–present	Professor (by courtesy) Department of Gynecology and Obstetrics, Stanford University, Stanford, CA

2004–present	Professor and Director Division of Radiation & Cancer Biology, Department of Radiation Oncology, Stanford University, Stanford, CA
2005–present	Director, Program in Cancer Biology Stanford University School of Medicine, Stanford, CA
2005–present	Leader, Program in Radiation Biology Stanford Cancer Center, Stanford University School of Medicine, Stanford, CA
2006–present	Professor (by courtesy) Department of Surgery, Stanford University, Stanford, CA
2011–present	Leader, Molecular Therapeutics Program Stanford Cancer Center, Stanford University School of Medicine, Stanford, CA
2011–present	Associate Chair, Research Department of Radiation Oncology Stanford University School of Medicine, Stanford, CA
2012–present	Associate Director for Basic Science Stanford Cancer Institute

Scientific Companies

2004	Co-Founding Scientist PROACTA, San Diego, CA/Auckland, New Zealand
2007	Co-Founding Scientist Arresto Biotech, Palo Alto, CA 2011 Bought by Gilead Sciences, Foster City, CA
2009	Co-Founding Scientist Aravive Bio Corporation, Houston, TX
2016	Co-Founding Scientist AKSO Bio, Palo Alto, CA

Awards and Honors

1986–1989	NIH Predoctoral Trainee
1989	Alexander Hollaender Fellowship Awardee
1995	American Cancer Society Junior Faculty Research Award
1996	Howard Hughes Junior Faculty Award
1997	Michael Fry Research Awardee of the Radiation Research Society
2000	John Yuhas Award (Excellence in Radiation Oncology, University of Pennsylvania)
2003	Virginia Logan Lecture, Thomas Jefferson University
2006	Jack, Lulu and Sam Willson Endowed Professor of Cancer Biology
2010	MERIT Award NIH
2013	ASTRO Gold Medal
2015	NIH Outstanding Investigator Award
2015	National Academy of Medicine
2016	Stanford Biosciences “Excellence in Mentoring and Service Award

Memberships, Offices, Committees and Assignments in Professional Societies

Service to Radiation Sciences

1986–present Radiation Research Society

1992–1993	Nominating Committee
1994–1995	Program Committee
1997–2000	Site Selection Committee
2001	Strategic Planning Committee
2002–2003	Councilor
2002–2003	ICRR Program Committee Brisbane, Australia

1992–present American Society for Therapeutic Radiation Oncology

2000–2004	Cancer and Radiation Biology Committee
2000–2009	Educational Sessions
2007	ASTRO Translational Symposium
2007	ASTRO Research Evaluation Committee

1995–present ABR Radiation Biology Committee
2010–present, Chair, Radiation Biology Committee

2003–present International Conference on Translational Radiation Oncology
Program Committee

2006–2009 Radiological Society of North America (RSNA) Task Force Member
on Oncologic Imaging and Therapies

1998–2003 Member, Radiation Study Section, NIH Center for Scientific Review
2001–2003, Chair

2005–2009 NCI Initial Review Group Subcommittee C-Basic & Preclinical

2012–2017 Member, Basic Mechanisms of Cancer Therapeutics Study Section, NIH Center for Scientific Review (Chair, 2015–2017)

Editorial Boards

1995–2010	International Journal of Radiation Biology 1995-2000 Editorial Board Member 2000-2009 Associate Editor
1998–2002	Radiation Research, Official Journal of the Radiation Research Society, Associate Editor
2000–2010	International Journal of Radiation Oncology, Biology, Physics, Editorial Board
2004–2009	Journal of Radiation Research, Official Journal of the Japan Radiation Research Society, Foreign Associate Editor
2001–present	Cancer Biology and Therapy, Associate Editor
2002–2012	Molecular Cancer Research, Deputy Editor for Reviews & Senior Editor
2003–2012	Cancer Research, Associate Editor
2005–present	Current Cancer Therapy Reviews, Editorial Advisory Board
2013–present	Peer J, Editorial Board
2015–present	Molecular Cancer Therapeutics, Editorial Board
2015–present	Scientific Reports, Editorial Board

Service to Cancer Research Societies

1993–present	American Association of Cancer Research
2002–2004	Molecular Biology in Clinical Oncology Workshop
2000–present	Tumor Microenvironment Meeting, Organizing Committee
2002, 2004 & 2017	Keystone Organizer and Co-Chair on Biology of Hypoxia
2006–present	Cancer Biology Chairs and Directors Organization, Chair 2009
2008–2010	Institute for Personalized Cancer Therapy (IPCT) at M.D. Anderson Cancer Center, External Advisory Board Member
2012-present	Aegean Conference on Tumor Microenvironment and Cellular Stress, Co-Organizer

Grant Support

NIH R01 CA64489 (Giaccia, P.I.) 05/03/96–02/29/00
"Regulation of p53 in Cervical Carcinoma by Heat/Hypoxia"

NIH R01 CA73832 (Giaccia, P.I.) 12/01/97–11/30/00
"Molecular Physiology of Hypoxia Induced Stress"

Department of the Army DAMD17-19-1-9004 (Peehl, P.I.) 02/15/99–09/14/01
"A Unifying Theory of Prostate Cancer"

Varian Biosynergy (Giaccia, P.I.) 09/01/96–09/30/01
"Identification and Isolation of Genes Induced by Ionizing Radiation and Low Oxygen Conditions (Hypoxia)"

NIH P01 CA67166 (Brown, P.I.) 06/15/96–03/31/02
"Tumor Hypoxia: Molecular Studies and Clinical Exploitation"

March of Dimes 6-FY99-366 (Giaccia, Co-Investigator) 06/01/99–05/31/02
"Molecular Basis for Hypoxia Regulation of IGFBP-1 and its Relevance to Intrauterine Fetal Hypoxia Growth Restriction During Human Pregnancy"

Aventis RPR (Giaccia, P.I.) 01/01/00–12/31/02
"Post-Transcriptional Regulation of Gene Expression by Hypoxia Through Highly Conserved RNA Sequences"

NIH R01 HD-36732 (Giaccia, Co-Investigator) 03/01/00–02/28/04
"Hypoxia, IGFBP-1 and Human Fetal Growth"

NIH R01 CA88480 (Giaccia, P.I.) 07/01/00–06/30/05
"Hypoxia and Gene Repression"

NIH P01 CA67166 (Giaccia, P.I.) 09/15/01–06/30/07
"Hypoxia: Molecular Studies and Clinical Exploitation"

Damon Runyon Cancer (Koong, P.I., Giaccia/Co-Mentor) 07/01/02–6/30/07
Research Foundation

"Modulation of Protein Kinase C as a Novel
Hypoxia-Specific Therapeutic Strategy"

NIH P01 CA082566 (Brown, P.I.) 04/09/04–3/31/09
"Development of New Hypoxic Cytotoxins for Cancer Therapy"

NIH EB005442-01A2 (Graves, P.I.) 06/01/07–05/31/09
"*In Vivo* Imaging of Hypoxia-Inducible Physiology"

14IB-0039 (Wu, P.I.) 07/01/08–12/31/09
"Imagine of Novel Stem Cell Therapy Targeting Breast Cancer"

NIH R01 CA88480 (Giaccia, P.I.) 07/01/05–04/30/10
"Hypoxia and Gene Repression"

NIH R01 CA118582 (Le, P.I.) 04/01/06–02/28/11
"Defining Molecular Markers for Tumor Hypoxia"

NIH R01 CA116685 (Giaccia, P.I.) 09/27/06–07/31/11
"CTGF in Pancreatic Tumor Growth & Therapy"

NIH P01 CA67166 (Giaccia, P.I.) 02/09/07–01/31/13
"Hypoxia: Molecular Studies and Clinical Exploitation"

NIH T32 CA09302 (Giaccia, P.I.) 07/01/07–06/30/13
"Cancer Etiology, Prevention, Detection & Diagnosis"

NIH T32 CA121940 (Giaccia, P.I.) 04/01/07–03/31/12
"Postdoctoral Training in the Radiation Sciences"

NIH CA120526 (Powell, P.I.) 07/01/07–05/31/11
Melanocyte Survival and Transformation:
Hypoxia & PI3 Kinase/Akt/mTOR"

NIH P30 CA124435 (Mitchell, P.I.) 06/04/07–05/31/10
"Stanford University Cancer Center"

NIH/R01 CA131199 (Graves P.I.) 03/10/08–03/09/13
"Small Animal Image-Guided Radiotherapy"

NIH/NIDDK R01 AR048191 (Schipani, P.I.) 04/01/08–03/31/13
"Hypoxia and Differentiation"

RadCCORE (Dewhirst, P.I.) 08/01/12–07/31/13
NIH Subaward (Giaccia)
"Molecular Mechanisms of Radioprotection"

NIH/NHLBI R01 HL095571 (Wu, P.I.) 02/01/10–11/30/14
"Integrated Strategies for Treatment of Myocardial Ischemia"

NIH R37 CA88480 (Giaccia, P.I.) 05/01/10–04/30/16
"Hypoxia and Gene Repression"

NIH P30 CA124435 (Mitchell, P.I.) 06/01/07–05/31/16
"Stanford University Cancer Center"

NIH/NIDDK R01 AR065403 (Schipani, P.I.) 10/01/13–09/31/18
"HIF-1α, a Survival and Differentiation Factor for Cartilage"

NIH P01 CA67166 (Giaccia, P.I.) 06/01/13–05/31/19
"Hypoxia: Molecular Studies and Clinical Exploitation" NCX

NIH T32 CA09302 (Giaccia, P.I.) 07/01/13–06/30/18
"Cancer Etiology, Prevention, Detection & Diagnosis"

NIH T32 CA121940 (Giaccia, P.I.) 09/24/14–08/31/19
"Postdoctoral Training in the Radiation Sciences"

NIH/UCSF P20 CA183640 (Roach, P.I.) 02/10/15–01/31/16
"NAPTA: Optimizing Clinical Trial Design & Delivery
of Particle Therapy for Cancer"

NIH R35 CA197713 (Giaccia, P.I.) 08/01/15–06/30/22
"The Impact of Mitochondrial Repression and Lipid
Accumulation by HIF on Tumor Growth"

NIIH R01 CA198291 (Giaccia, P.I.) 09/30/16–09/29/21
"Preclinical Testing of a Novel Therapy Targeting AXL
in Advanced Kidney Cancer

Patents

1. Administering Protein Kinase C Activator Consisting of Phorbol Ester, Diacylglycerol, or Thapsigargin to Hypoxic Cells
   US Patent 5,646,185, July 8, 1997

2. Hypoxia-inducible Human Genes, Proteins, and Uses Thereof
   US Patent WO1999048916 A3, January 20, 2000

3. Diagnostic Marker for Tumor Hypoxia and Prognosis
   US Patent 2003/0044862 A1, March 6, 2003

4. Methods and Compositions for Regulating Adipogenesis
   US Patent (Pending)
   Attorney Docket No. P35045 068445.0103

5. Anaerobe Targeted Enzyme-Mediated Prodrug
   US Patent 6,416,754

6. Inhibition of Lysyl Oxidase for the Prevention and Treatment of Cancer
   US Patent Application 60/692,435
   Attorney Docket No: 286003023800

7. Novel ShRNA Gene Therapy for Treatment of Ischemic Heart Disease
   US Patent 8,680,064, March 25, 2014
   Attorney Docket No: S08-044

8. Heteroaryl Benzamides, Compositions and Methods of Use in Cancer Treatment
   Attorney Docket No: S08-433

9. The use of prolyl hydroxylase inhibitors as a radioprotective drug for the lower gastrointestinal tract
   US Patent WO 2013032893 A1, March 7, 2013

10. Inhibition of AXL Signaling in Anti-Metastatic Therapy
    US Patent WO2014035828 A3, May 1, 2014

11. Substituted Benzamides and Their Uses
    US 9,085,570
    Stanford ref.: S10-180

12. Antifibrotic Activity of GAS6 Inhibitor
    PCT/US2015/066498
    Attorney Docket No: RUGA-002WO
    S15-013 RUGA

Graduate Students

Eunice Chen	(1988–2001)
Luis Alvarez	(1991–1994)
Albert Koong	(1991–1994)
Sophia Kuo	(1992–1993)
Thomas Graeber	(1992–1995)
Susannah Green	(1995–2000)
Wayne Zundel	(1995–2000)
Rudy Alarcon	(1996–2000)
Heather Maecker	(1997–2001)
Patrick Sutphin	(1998–2007)
Rachel Freiberg	(1999–2005)
Denise Chan	(2000–2009)
Lucrezia Fontana	(2001–2002)
Fiona Kaper	(2000–2005)
Anje Hoeg	(2005–2006)
Hanne Jensen	(2005–2006)
Muriel Kaufmann	(2006–2007)
Laura Castellini	(2007–2008, 2010-present)
Phuong-Vi Nguyen	(2007–2009)
Tiffany Taylor	(2008–2009)
Katherine Fuh	(2009–2013)
Tiffany Williams	(2011–2015)
Anh Diep	(2011–present)

Summer Veterinary Students

Christina Alarcon DVM
Meg Musser DVM
Amanda Koehne DVM
John Nagel
Alexandra Schauer

Publications

1. Stamato, T.D., Weinstein, R., **Giaccia, A.J.** and Mackenzie, L. Isolation of a cell cycle-dependent gamma ray-sensitive Chinese hamster ovary cell. Somat Cell Genet 9:165–173, 1983 (PMID: 6836453).

2. Stamato, T.D., Weinstein, R. and **Giaccia, A.** Timing of mutation-fixation events in ethyl methane sulfonate-treated Chinese hamster cells. Somat Cell Mol Genet 10:429–434, 1984 (PMID: 6589795).

3. **Giaccia, A.**, Weinstein, R., Hu, J. and Stamato, T.D. Cell-cycle dependent repair of double strand breaks in a gamma-ray-sensitive Chinese hamster cell. Somat Cell Mol Genet 11:485–491, 1985 (PMID: 3862244).

4. Stamato, T., Weinstein, R., Peters, B., Hu, J., Doherty, B. and **Giaccia, A.** Delayed mutation in Chinese hamster cells. *Somat Cell Mol Genet* 13:57–65, 1987 (PMID: 3468633).

5. Stamato, T.D., Peters, B., Patil, P., Denko, N., Weinstein, R. and **Giaccia, A.J.** Isolation and characterization of bleomycin-sensitive Chinese hamster ovary cells. Cancer Res 47:1588–1592, 1987 (PMID: 2434221).

6. Stamato, T.D., Dipatri, A. and **Giaccia, A.J.** Cell-cycle-dependent repair of potentially lethal damage in the XR-1 gamma-ray-sensitive Chinese hamster ovary cell . Radiat Res 115:325–333, 1988 (PMID: 3406371).

7. Dasgupta, P., Linnenbach, A.J., **Giaccia, A.J.**, Stamato, T.D. and Reddy, E.P. Molecular cloning of the breakpoint region on chromosome 6 in cutaneous malignant melanoma: evidence for deletion in the c-*myb* locus and translocation of a segment of chromosome 12. Oncogene 4:1201–1205, 1989 (PMID: 2677917).

8. Stamato, T.D., Richardson, E., Ianacone, J., MacLaren, R.A., Denko, N. and **Giaccia, A.** Isolation and characterization of glucose-6-phosphate dehydrogenase-deficient Chinese hamster cells derived from pure mutant colonies. Mutagenesis 4:259–264, 1989 (PMID: 2674604).

9. Denko, N., **Giaccia, A.J.**, Peters, B. and Stamato, T.D. An asymmetric field inversion gel electrophoresis method for the separation of large DNA molecules. Anal Biochem 178:172–176, 1989 (PMID: 2729570).

10. **Giaccia, A.J.**, Richardson, E., Denko, N. and Stamato, T.D. Genetic analysis of the XR-1 mutation in hamster and human hybrids. Somat Cell Mol Genet 15:71–77, 1989 (PMID: 2916163).

11. **Giaccia, A.J.**, MacLaren, R., Denko, N., Nicolaou, D. and Stamato, T.D. Increased sensitivity to killing by restriction enzymes in the XR-1 DNA double-strand break repair-deficient mutant. Mutat Res 236:67-76, 1990. (PMID: 2164147)

12. **Giaccia, A.J.**, Denko, N., MacLaren, R., Mirman, D., Waldren, C. and Stamato, T.D. Human chromosome 5 complements the DNA double-strand break-repair deficiency and gamma-ray sensitivity of the XR-1 hamster variant. Am J Hum Genet 47:459-469, 1990 (PMID: 1697445).

13. **Giaccia, A.J.**, Evans, J. and Brown, J.M. Use of fluorescent *in situ* hybridization to detect chromosomal rearrangements in somatic cell hybrids. Gene Chromosome Can 2:248-251, 1990 (PMID: 2078516).

14. Hentosh, P., Collins, A.R.S., Correll, L., Fornace, A.J., Jr., **Giaccia, A.J.** and Waldren, C. Genetic and biochemical characterization of the CHO-UV-1 mutant defective in post replication recovery of DNA. Cancer Res 50:2356-2362, 1990 (PMID: 2317821).

15. Bahari, I.B., Bedford, J., **Giaccia, A.J.** and Stamato, T.D. Measurement of the relative proportion of symmetrical and asymmetrical chromosome-type interchanges induced by gamma-radiation in human-hamster hybrid cells. Radiat Res 123:105-107, 1990.

16. Evans, J.W., Chang, J., **Giaccia, A.J.**, Pinkel, D. and Brown, J.M. The use of fluorescence *in situ* hybridization combined with premature chromosome condensation for the identification of chromosome damage. Brit J Cancer 63:517-521, 1991 (PMID: 2021536).

17. **Giaccia, A.J.**, Shieh, J., Cholon, A. and Brown, J.M. Biochemical evidence for two different mechanisms for bleomycin cell killing. Mutat Res 263:69-75, 1991 (PMID: 1710776).

18. Anderson, R.L., Fong, K.J., Gabriele, T., Lavagnini, P., Hahn, G.M., Evans, J.W., Waldren, C.A., Stamato, T.D. and **Giaccia, A.J.** Loss of the intrinsic heat resistance of human cells and changes in Mr 70,000 heat shock protein expression in human X hamster hybrids. Cancer Res 51:2636-2641, 1991 (PMID: 2021941).

19. Biedermann, K.A., Sun, J., **Giaccia, A.J.**, Tosto, L. and Brown, J.M. *Scid* mutation in mice confers hypersensitivity to ionizing radiation and a deficiency in DNA double strand break repair. Proc Natl Acad Sci USA 88:1394-1397, 1991 (PMID: 1996340).

20. **Giaccia, A.J.**, Lewis, A.D., Denko, N., Cholon, A., Evans, J.W., Waldren, C., Stamato, T.D. and Brown, J.M. The hypersensitivity of the Chinese hamster ovary variant BL-10 to bleomycin killing is due to a lack of glutathione S-transferase-a activity. Cancer Res 51:4463-4469, 1991 (PMID: 1714344).

21. **Giaccia, A.J.**, Auger, E.A., Koong, A., Terris, D., Minchinton, A., Hahn, G.M. and Brown, J.M. Activation of the heat shock transcription factor by hypoxia in normal and tumor cell lines *in vivo* and *in vitro*. Int J Radiat Oncol Biol Phys 23:891-897, 1992 (PMID: 1618682).

22. Kim, C., **Giaccia, A.J.**, Strulovici, B. and Brown, J.M. Differential expression of protein kinase C ε protein in lung cancer cell lines by ionising radiation. Br J Cancer 66:844-849, 1992 (PMID: 1329908).

23. Cholon, A., **Giaccia, A.J.**, Lewis, A.D., Hickson, I. and Brown, J.M. What role do glutathione S-transferases play in the cellular response to ionizing radiation? Int J Radiat Oncol Biol Phys 22:759-763, 1992 (PMID: 1544849).

24. **Giaccia, A.J.**, Schwartz, J., Shieh, J. and Brown, J.M. The use of asymmetric-field inversion gel electrophoresis to predict tumor cell radiosensitivity. Radiother Oncol 24:231-238, 1992 (PMID: 1410578).

25. **Giaccia, A.J.**, Biedermann, K.A., Tosto, L.M., Minchinton, A.I., Kovacs, M.S. and Brown, J.M. Characterization of a CHO cell line resistant to killing by the hypoxic cell cytotoxin SR 4233. Int J Radiat Oncol Biol Phys 22:681-684, 1992 (PMID: 1544836).

26. Abella Columna, E., **Giaccia, A.J.**, Evans, J.W., Yates, J.W. and Morgan, W.F. Analysis of restriction enzyme induced chromosomal aberrations by fluorescence *in situ* hybridization. Environ Mol Mutagen 22:26-33, 1993 (PMID: 8393403).

27. Kuo, S., Saad, A.H., Koong, A.C., Hahn, G.M. and **Giaccia, A.J.** Potassium channel activation in response to low doses of g-radiation involves reactive oxygen intermediates in non-excitatory cells. Proc Natl Acad Sci USA 90:908-912, 1993 (PMID: 8430104).

28. Auger, E.A., **Giaccia, A.J.** and Hahn, G.M. Heat sensitivity of bleomycin-sensitive CHO derivatives is not due to improper initiation of heat shock response. Int J Hyperthermia 9:275-284, 1993 (PMID: 7682247).

29. Koong, A.C., **Giaccia, A.J.**, Hahn, G.M. and Saad, A.H. Activation of potassium channels by hypoxia and reoxygenation in the human lung adenocarcinoma cell line A549. J Cell Physiol 156:341-347, 1993 (PMID: 8344990).

30. Alvarez, L., Evans, J.W., Wilks, R., Lucas, J.N., Brown, J.M. and **Giaccia, A.J.** Chromosomal radiosensitivity at intrachromosomal telomeric sites. Gene Chromosome Canc 8:8-14, 1993 (PMID: 7691162).

31. Mivechi, N.F., Koong, A.C., **Giaccia, A.J.** and Hahn, G.M. Analysis of HSF-1 phosphorylation in A549 cells treated with a variety of stresses. Int J Hyperthermia 10:371-379, 1994 (PMID: 7930803).

32. Koong, A., Chen, E., Lee, A.S., Brown, J.M. and **Giaccia, A.J.** Increased cytotoxicity of chronic hypoxic cells by molecular inhibition of GRP78 induction. Int J Radiat Oncol Biol Phys 28:661-666, 1993 (PMID: 8113109).

33. Koong, A., Chen, E. and **Giaccia, A.J.** Hypoxia causes the activation of nuclear Factor κB through the phosphorylation of IkBa on tyrosine residues. Cancer Res 54:1425-1430, 1994 (PMID: 8137243).

34. Koong, A.C., Auger, E.A., Chen, E.Y. and **Giaccia, A.J.** The regulation of GRP78 protein and messenger RNA levels by hypoxia is modulated by protein kinase C activators and inhibitors. Radiat Res 138:S60-S63, 1994 (PMID: 8146329).

35. Koong, A.C., Chen, E.Y., Kim, C.Y. and **Giaccia, A.J.** Activators of protein kinase C selectively mediate cellular cytotoxicity to hypoxic cells and not aerobic cells. Int J Radiat Oncol Biol Phys 29:259-265, 1994 (PMID: 8195017).

36. Koong, A.C., Chen, E.Y., Mivechi, N.F., Denko, N.C., Stambrook, P. and **Giaccia, A.J.** Hypoxic activation of nuclear factor-κB is mediated by a *Ras* and *Raf* signaling pathway and does not involve MAP kinase (ERK1 or ERK2). Cancer Res 54: 5273-5279, 1994 (PMID: 7923153).

37. Saad, A.H., Kuo, S.S., Koong, A.C., Hahn, G.M. and **Giaccia, A.J.** Modulation of potassium channels by protein tyrosine kinase inhibitors. J Cell Physiol 161:142-148, 1994 (PMID: 7929599).

38. Graeber, T.G., Peterson, J.F., Tsai, M., Monica K., Fornace, Jr., A.J. and **Giaccia, A.J.** Hypoxia induces the accumulation of *p53* protein, but the activation of a G_1-phase checkpoint by low oxygen conditions is independent of p53 status. Mol Cell Biol 14:6264-6277, 1994 (PMID: 8065358).

39. Denko, N.C., **Giaccia, A.J.**, Stringer, J.R. and Stambrook, P.N. The human Ha-*ras* oncogene induces genomic instability in murine fibroblasts within one cell-cycle. Proc Natl Acad Sci USA 91:5124-5128, 1994 (PMID: 8197195).

40. Brown, J.M. and **Giaccia, A.J.** Tumor hypoxia: the picture has changed in the 1990s. Int J Radiat Biol 65:95-102, 1994 (PMID: 7905916).

41. Mivechi, N. F. and **Giaccia, A.J.** Mitogen-activated protein kinase acts as a negative regulator of the heat shock response in NIH3T3 Cells. Cancer Res 55:5512-5519, 1995 (PMID: 7585624).

42. Minton, N.P., Mauchline, M.L., Lemmon, M. J., Brehm, J.K., Fox, M., Michael, N.P., **Giaccia, A.J.** and Brown, J.M. Chemotherapeutic tumour targeting using clostridial spores. FEMS Microbiol Rev 17:357-364, 1995 (PMID: 7576773).

43. Girinsky, T., Koumenis, C., Graeber, T.G., Peehl, D.M. and **Giaccia, A.J.** Attenuated response of p53 and p21 in primary cultures of human prostatic epithelial cells exposed to DNA damaging agents. Cancer Res 55:3726-3731, 1995 (PMID: 7543816).

44. Mazure, N.M., Chen, E.Y., Yeh, P., Laderoute, K.R. and **Giaccia, A.J.** Oncogenic transformation and hypoxia synergistically act to modulate vascular endothelial growth factor expression. Cancer Res 56:3436-3440, 1996 (PMID: 8758908).

45. Alarcon, R.M., Rupnow, B.A., Graeber, T.G., Knox, S.J. and **Giaccia, A.J.** Modulation of c-Myc activity and apoptosis *in vivo*. Cancer Res 56:4315-4319, 1996 (PMID: 8813114).

46. Fried, L.M., Koumenis, C., Peterson, S.R., Green, S.L., van Zijl, P., Allalunis-Turner, J., Chen, D.J., Fishel, R., **Giaccia, A.J.**, Brown, J.M. and Kirchgessner, C.U. The DNA damage response in DNA-dependent protein kinase-deficient SCID mouse cells: Replication protein a hyperphosphorylation and p53 induction. Proc Natl Acad Sci USA 93:13825-13830, 1996 (PMID: 8943020).

47. Fox, M.E., Lemmon, M.J., Mauchline, M.L., Davis, T.O., **Giaccia, A.J.**, Minton, N.P. and Brown, J.M. Anaerobic bacteria as a delivery system for cancer gene therapy: *in vitro* activation of 5-fluorocytosine by genetically engineered clostridia. Gene Ther 3:173-178, 1996 (PMID: 8867865).

48. Bergeron, M., Mivechi, N.F., **Giaccia, A.J.** and Giffard, R.G. Mechanism of heat shock Protein 72 induction in primary cultured astrocytes after oxygen-glucose deprivation. Neurol Res 18:64-72, 1996 (PMID: 8714540).

49. Graeber, T.G., Osmanian, C., Jacks, T., Houseman, D., Koch, C.J., Lowe, S.W. and **Giaccia, A.J.** Hypoxia-mediated selection of cells with diminished apoptotic potential in solid tumours. Nature 379:88-91, 1996 (PMID: 8538748).

50. Laderoute, K.R., Calaoagan, J.M., Ausserer, W.A., Chen, E.Y., **Giaccia, A.J.** and Sutherland, R.M. Early response of SiHa human squamous carcinoma cells to hypoxic signals: Evidence of parallel activation of NF-kB and AP-1 transcriptional complexes. Int J Oncol 8:875-882, 1996.

51. Mazure, N.M., Chen, E.Y., Laderoute, K.R. and **Giaccia, A.J.** Induction of vascular endothelial growth factor by hypoxia is modulated by a PI 3-kinase/Akt signaling pathway in Ha-*ras*-transformed cells through a HIF-1 transcriptional element. Blood 90:3322-3331, 1997 (PMID: 9345014).

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