



Martin Brown

Professor of Radiation Oncology, Emeritus
Neurology & Neurological Sciences

 NIH Biosketch available Online

Bio

ACADEMIC APPOINTMENTS

- Professor Emeritus-Hourly, Neurology & Neurological Sciences
- Member, Bio-X
- Member, Stanford Cancer Institute

ADMINISTRATIVE APPOINTMENTS

- Director, Graduate Program in Cancer Biology, (1990-2002)
- Director, Division of Radiation and Cancer Biology, (1984-2004)

HONORS AND AWARDS

- Bruce Cain Memorial Award, American Association for Cancer Research (1999)
- Gold Medal, American Society for Therapeutic Radiology and Oncology (1999)
- Failla Memorial Award, Radiation Research Society (2000)
- Weiss Medal, Association for Radiation Research (2001)
- Henry S. Kaplan Distinguished Scientist Award, International Association for Radiation Research (2007)

PROFESSIONAL EDUCATION

- B.Sc, Birmingham University , Physics (1963)
- M.Sc, London University , Radiation biology and physics (1965)
- Ph.D, Oxford University , Cancer Biology (1968)

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

We seek to understand the mechanisms responsible for the resistance of solid tumors to cancer therapies and to develop strategies to overcome these resistances. The main project is

We are investigating the role of bone marrow derived cells in restoring the tumor vasculature after radiotherapy (which destroys local angiogenesis). This process is known as vasculogenesis. In particular we seek to improve tumor cure rates by radiotherapy by inhibiting the repair of the tumor vasculature in GBM by circulating cells following radiation to the tumors by selective inhibition of the chemokine pathway(s) responsive for the mobilization and capture in the tumor of the circulating proangiogenic cells.

CLINICAL TRIALS

- Whole Brain Radiation Therapy With Standard Temozolomide Chemo-Radiotherapy and Plerixafor in Treating Patients With Glioblastoma, Recruiting

Teaching

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Cancer Biology (Phd Program)

Publications

PUBLICATIONS

- **Radiation Damage to Tumor Vasculature Initiates a Program that Promotes Tumor Recurrences.** *International journal of radiation oncology, biology, physics*
Brown, J. M.
2020
- **Macrophage exclusion after radiation therapy (MERT): A new and effective way to increase the therapeutic ratio of radiotherapy.** *Radiotherapy and oncology : journal of the European Society for Therapeutic Radiology and Oncology*
Brown, J. M., Thomas, R., Nagpal, S., Recht, L.
2019; 144: 159–64
- **Dynamin 2, cell trafficking, and the triple-negative paradox.** *Oncotarget*
Chernikova, S. B., Game, J. C., Brown, J. M.
2019; 10 (24): 2336–37
- **Targeting the Post-Irradiation Tumor Microenvironment in Glioblastoma via Inhibition of CXCL12.** *Cancers*
Giordano, F. A., Link, B., Glas, M., Herrlinger, U., Wenz, F., Umansky, V., Brown, J. M., Herskind, C.
2019; 11 (3)
- **Macrophage Exclusion after Radiation Therapy (MERT): A First in Human Phase I/II Trial using a CXCR4 Inhibitor in Glioblastoma.** *Clinical cancer research : an official journal of the American Association for Cancer Research*
Thomas, R. P., Nagpal, S., Iv, M., Soltys, S. G., Bertrand, S., Pelpola, J. S., Ball, R. L., Yang, J., Sundaram, V., Lavezo, J. L., Born, D. E., Vogel, H., Brown, et al
2019
- **Dynamin impacts homology-directed repair and breast cancer response to chemotherapy.** *The Journal of clinical investigation*
Chernikova, S. B., Nguyen, R. B., Truong, J. T., Mello, S. S., Stafford, J. H., Hay, M. P., Olson, A., Solow-Cordero, D. E., Wood, D. J., Henry, S., von Eyben, R., Deng, L., Gephart, et al
2018
- **The Promise of Targeting Macrophages in Cancer Therapy** *CLINICAL CANCER RESEARCH*
Brown, J., Recht, L., Strober, S.
2017; 23 (13): 3241–50
- **SDF-1 Blockade Enhances Anti-VEGF Therapy of Glioblastoma and Can Be Monitored by MRI** *NEOPLASIA*
Deng, L., Stafford, J. H., Liu, S., Chernikova, S. B., Merchant, M., Recht, L., Brown, J. M.
2017; 19 (1): 1-7
- **Colony stimulating factor 1 receptor inhibition delays recurrence of glioblastoma after radiation by altering myeloid cell recruitment and polarization** *NEURO-ONCOLOGY*
Stafford, J. H., Hirai, T., Deng, L., Chernikova, S. B., Urata, K., West, B. L., Brown, J. M.
2016; 18 (6): 797-806
- **The Tumor Radiobiology of SRS and SBRT: Are More Than the 5 Rs Involved?** *INTERNATIONAL JOURNAL OF RADIATION ONCOLOGY BIOLOGY PHYSICS*
Brown, J. M., Carlson, D. J., Brenner, D. J.
2014; 88 (2): 254-262

- **Blockade of SDF-1 after irradiation inhibits tumor recurrences of autochthonous brain tumors in rats** *NEURO-ONCOLOGY*
Liu, S., Alomran, R., Chernikova, S. B., Lartey, F., Stafford, J., Jang, T., Merchant, M., Zboralski, D., Zoellner, S., Kruschinski, A., Klussmann, S., Recht, L., Brown, et al
2014; 16 (1): 21-28
- **Inhibition of Mac-1 (CD11b/CD18) enhances tumor response to radiation by reducing myeloid cell recruitment** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Ahn, G., Tseng, D., Liao, C., Dorie, M. J., Czechowicz, A., Brown, J. M.
2010; 107 (18): 8363-8368
- **Inhibition of vasculogenesis, but not angiogenesis, prevents the recurrence of glioblastoma after irradiation in mice** *JOURNAL OF CLINICAL INVESTIGATION*
Kioi, M., Vogel, H., Schultz, G., Hoffman, R. M., Harsh, G. R., Brown, J. M.
2010; 120 (3): 694-705
- **Association of reactive oxygen species levels and radioresistance in cancer stem cells** *NATURE*
Diehn, M., Cho, R. W., Lobo, N. A., Kalisky, T., Dorie, M. J., Kulp, A. N., Qian, D., Lam, J. S., Ailles, L. E., Wong, M., Joshua, B., Kaplan, M. J., Wapnir, et al
2009; 458 (7239): 780-U123
- **Matrix metalloproteinase-9 is required for tumor vasculogenesis but not for angiogenesis: Role of bone marrow-derived myelomonocytic cells** *CANCER CELL*
Ahn, G., Brown, J. M.
2008; 13 (3): 193-205
- **Beware of clinical trials of DNA repair inhibitors.** *International journal of radiation oncology, biology, physics*
Brown, J. M.
2018
- **Report from the SWOG Radiation Oncology Committee: Research Objectives Workshop 2017** *CLINICAL CANCER RESEARCH*
Okunieff, P., Casey-Sawicki, K., Lockney, N. A., Hoppe, B. S., Enderling, H., Pinnix, C., Welsh, J., Krishnan, S., Yothers, G., Browns, M., Knox, S., Bristow, R., Spellman, et al
2018; 24 (15): 3500-3509
- **The Biology of SBRT: LQ or Something New?** *INTERNATIONAL JOURNAL OF RADIATION ONCOLOGY BIOLOGY PHYSICS*
Brown, J.
2018; 101 (4): 964
- **18F-EF5 Pet-Based Imageable Hypoxia Predicts for Local Control in Tumors Treated With Conformal Radiotherapy**
Qian, Y., Liu, Y., Von Eyben, R., Carter, J. N., Pollom, E. L., Harris, J. P., Prionas, N. D., Binkley, M. S., Simmons, A., Diehn, M., Chin, F. T., Shultz, D. B., Brown, et al
ELSEVIER SCIENCE INC.2018: E17-E18
- **Combining precision radiotherapy with molecular targeting and immunomodulatory agents: a guideline by the American Society for Radiation Oncology** *LANCET ONCOLOGY*
Bristow, R. G., Alexander, B., Baumann, M., Bratman, S. V., Brown, J., Camphausen, K., Choyke, P., Citrin, D., Contessa, J. N., Dicker, A., Kirsch, D. G., Krause, M., Quynh-Thu Le, et al
2018; 19 (5): E240-E251
- **18F-EF5 PET-based Imageable Hypoxia Predicts Local Recurrence in Tumors Treated With Highly Conformal Radiation Therapy.** *International journal of radiation oncology, biology, physics*
Qian, Y., Von Eyben, R., Liu, Y., Chin, F. T., Miao, Z., Apte, S., Carter, J. N., Binkley, M. S., Pollom, E. L., Harris, J. P., Prionas, N. D., Kissel, M., Simmons, et al
2018
- **Preclinical Data on Efficacy of 10 Drug-Radiation Combinations: Evaluations, Concerns, and Recommendations** *TRANSLATIONAL ONCOLOGY*
Stone, H. B., Bernhard, E. J., Coleman, C., Deye, J., Capala, J., Mitchell, J. B., Brown, J.
2016; 9 (1): 46-56
- **Fractionated Radiation for Newly Diagnosed Supratentorial Glioblastoma Multiforme: In Regard to Brachman et al.** *International journal of radiation oncology, biology, physics*
Brown, M., Bernhard, E., Mitchel, J., Stone, H.
2016; 94 (1): 210-11

- **Improving the Predictive Value of Preclinical Studies in Support of Radiotherapy Clinical Trials.** *Clinical cancer research : an official journal of the American Association for Cancer Research*
Coleman, C. N., Higgins, G. S., Brown, J. M., Baumann, M., Kirsch, D. G., Willers, H., Prasanna, P. G., Dewhirst, M. W., Bernhard, E. J., Ahmed, M. M.
2016; 22 (13): 3138-47
- **Innovation in Radiation Oncology Reply** *INTERNATIONAL JOURNAL OF RADIATION ONCOLOGY BIOLOGY PHYSICS*
Brown, J., Adler, J. R.
2015; 93 (4): 935-36
- **Is Equipment Development Stifling Innovation in Radiation Oncology?** *INTERNATIONAL JOURNAL OF RADIATION ONCOLOGY BIOLOGY PHYSICS*
Brown, J., Adler, J. R.
2015; 92 (4): 713-14
- **Gastrointestinal Toxicities With Combined Antiangiogenic and Stereotactic Body Radiation Therapy.** *International journal of radiation oncology, biology, physics*
Pollom, E. L., Deng, L., Pai, R. K., Brown, J. M., Giaccia, A., Loo, B. W., Shultz, D. B., Le, Q. T., Koong, A. C., Chang, D. T.
2015; 92 (3): 568-576
- **High-dose and fractionation effects in stereotactic radiation therapy: Analysis of tumor control data from 2965 patients** *RADIOTHERAPY AND ONCOLOGY*
Shuryak, I., Carlson, D. J., Brown, J. M., Brenner, D. J.
2015; 115 (3): 327-334
- **Cell Death Identification in Anticancer Therapy-Letter.** *Cancer research*
Brown, J. M., Wouters, B. G., Kirsch, D. G.
2015; 75 (17): 3681
- **Inhibition of CXCR7 extends survival following irradiation of brain tumours in mice and rats** *BRITISH JOURNAL OF CANCER*
Walters, M. J., Ebsworth, K., Berahovich, R. D., Penfold, M. E., Liu, S., Al Omran, R., Kioi, M., Chernikova, S. B., Tseng, D., Mulkearns-Hubert, E. E., Sinyuk, M., Ransohoff, R. M., Lathia, et al
2014; 110 (5): 1179-1188
- **Vasculogenesis: a crucial player in the resistance of solid tumours to radiotherapy** *BRITISH JOURNAL OF RADIOLOGY*
Brown, J. M.
2014; 87 (1035)
- **Dose escalation, not "new biology," can account for the efficacy of stereotactic body radiation therapy with non-small cell lung cancer. In reply to Rao et al.** *International journal of radiation oncology, biology, physics*
Brown, J. M., Carlson, D. J., Brenner, D. J.
2014; 89 (3): 693-94
- **Lessons Learned from Radiation Oncology Clinical Trials** *CLINICAL CANCER RESEARCH*
Liu, F., Okunieff, P., Bernhard, E. J., Stone, H. B., Yoo, S., Coleman, C. N., Vikram, B., Brown, M., Buatti, J., Guha, C.
2013; 19 (22): 6089-6100
- **Inhibiting Vasculogenesis After Radiation: A New Paradigm to Improve Local Control by Radiotherapy** *SEMINARS IN RADIATION ONCOLOGY*
Brown, J. M.
2013; 23 (4): 281-287
- **Dose Escalation, Not "New Biology," Can Account for the Efficacy of Stereotactic Body Radiation Therapy With Non-Small Cell Lung Cancer** *INTERNATIONAL JOURNAL OF RADIATION ONCOLOGY BIOLOGY PHYSICS*
Brown, J. M., Brenner, D. J., Carlson, D. J.
2013; 85 (5): 1159-1160
- **The irradiated tumor microenvironment: role of tumor-associated macrophages in vascular recovery.** *Frontiers in physiology*
Russell, J. S., Brown, J. M.
2013; 4: 157
- **The irradiated tumor microenvironment: role of tumor-associated macrophages in vascular recovery** *FRONTIERS IN PHYSIOLOGY*
Russell, J. S., Brown, J. M.

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- **R-loops and genomic instability in Bre1 (RNF20/40)-deficient cells** *CELL CYCLE*
Chernikova, S. B., Brown, J. M.
2012; 11 (16): 2980-2984
- **Deficiency in Mammalian Histone H2B Ubiquitin Ligase Bre1 (Rnf20/Rnf40) Leads to Replication Stress and Chromosomal Instability** *CANCER RESEARCH*
Chernikova, S. B., Razorenova, O. V., Higgins, J. P., Sishc, B. J., Nicolau, M., Dorth, J. A., Chernikova, D. A., Kwok, S., Brooks, J. D., Bailey, S. M., Game, J. C., Brown, J. M.
2012; 72 (8): 2111-2119
- **Imaging Tumor Sensitivity to a Bioreductive Prodrug: Two for the Price of One!** *CLINICAL CANCER RESEARCH*
Brown, J. M.
2012; 18 (6): 1487-1489
- **Inhibiting homologous recombination for cancer therapy** *CANCER BIOLOGY & THERAPY*
Chernikova, S. B., Game, J. C., Brown, J. M.
2012; 13 (2): 61-68
- **Overcoming Hypoxia-Induced Apoptotic Resistance through Combinatorial Inhibition of GSK-3 beta and CDK1** *CANCER RESEARCH*
Mayes, P. A., Dolloff, N. G., Daniel, C. J., Liu, J. J., Hart, L. S., Kuribayashi, K., Allen, J. E., Jee, D. I., Dorsey, J. F., Liu, Y. Y., Dicker, D. T., Brown, J. M., Furth, et al
2011; 71 (15): 5265-U264
- **IN REGARD TO BROWN ET AL. (INT J RADIAT ONCOL BIOL PHYS 2010;78:323-327) REPLY** *INTERNATIONAL JOURNAL OF RADIATION ONCOLOGY BIOLOGY PHYSICS*
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2011; 80 (5): 1605-1605
- **Targeting SDF-1/CXCR4 to inhibit tumour vasculature for treatment of glioblastomas** *BRITISH JOURNAL OF CANCER*
Tseng, D., Vasquez-Medrano, D. A., Brown, J. M.
2011; 104 (12): 1805-1809
- **HYPOFRACTIONATION RESULTS IN REDUCED TUMOR CELL KILL COMPARED TO CONVENTIONAL FRACTIONATION FOR TUMORS WITH REGIONS OF HYPOXIA** *INTERNATIONAL JOURNAL OF RADIATION ONCOLOGY BIOLOGY PHYSICS*
Carlson, D. J., Keall, P. J., Loo, B. W., Chen, Z. J., Brown, J. M.
2011; 79 (4): 1188-1195
- **Deficiency in Bre1 Impairs Homologous Recombination Repair and Cell Cycle Checkpoint Response to Radiation Damage in Mammalian Cells** *RADIATION RESEARCH*
Chernikova, S. B., Dorth, J. A., Razorenova, O. V., Game, J. C., Brown, J. M.
2010; 174 (5): 558-565
- **Pharmacokinetic/Pharmacodynamic Modeling Identifies SN30000 and SN29751 as Tirapazamine Analogues with Improved Tissue Penetration and Hypoxic Cell Killing in Tumors** *CLINICAL CANCER RESEARCH*
Hicks, K. O., Siim, B. G., Jaiswal, J. K., Puijn, F. B., Fraser, A. M., Patel, R., Hogg, A., Liyanage, H. D., Dorie, M. J., Brown, J. M., Denny, W. A., Hay, M. P., Wilson, et al
2010; 16 (20): 4946-4957
- **STEREOTACTIC ABLATIVE RADIOTHERAPY SHOULD BE COMBINED WITH A HYPOXIC CELL RADIOSENSITIZER** *INTERNATIONAL JOURNAL OF RADIATION ONCOLOGY BIOLOGY PHYSICS*
Brown, J. M., Diehn, M., Loo, B. W.
2010; 78 (2): 323-327
- **Elusive Identities and Overlapping Phenotypes of Proangiogenic Myeloid Cells in Tumors** *AMERICAN JOURNAL OF PATHOLOGY*
Coffelt, S. B., Lewis, C. E., Naldini, L., Brown, J. M., Ferrara, N., De Palma, M.
2010; 176 (4): 1564-1576
- **Henry S. Kaplan Distinguished Scientist Award Lecture 2007. The remarkable yin and yang of tumour hypoxia.** *International journal of radiation biology*
Brown, M.

2010; 86 (11): 907-17

- **Role of endothelial progenitors and other bone marrow-derived cells in the development of the tumor vasculature** *ANGIOGENESIS*
Ahn, G., Brown, J. M.
2009; 12 (2): 159-164
- **Roles of DNA repair and reductase activity in the cytotoxicity of the hypoxia-activated dinitrobenzamide mustard PR-104A** *MOLECULAR CANCER THERAPEUTICS*
Gu, Y., Patterson, A. V., Atwell, G. J., Chernikova, S. B., Brown, J. M., Thompson, L. H., Wilson, W. R.
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- **DNA Cross-Links in Human Tumor Cells Exposed to the Prodrug PR-104A: Relationships to Hypoxia, Bioreductive Metabolism, and Cytotoxicity** *CANCER RESEARCH*
Singleton, R. S., Guise, C. P., Ferry, D. M., Pullen, S. M., Dorie, M. J., Brown, J. M., Patterson, A. V., Wilson, W. R.
2009; 69 (9): 3884-3891
- **Influence of bone marrow-derived hematopoietic cells on the tumor response to radiotherapy** *Experimental models and clinical perspectives* *CELL CYCLE*
Ahn, G., Brown, J. M.
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- **Radiosensitization of Yeast Cells by Inhibition of Histone H4 Acetylation** *RADIATION RESEARCH*
Song, S., McCann, K. E., Brown, J. M.
2008; 170 (5): 618-627
- **A role for Lsm1p in response to ultraviolet-radiation damage in *Saccharomyces cerevisiae*** *RADIATION RESEARCH*
Spicakova, T., McCann, K., Brown, J. M.
2008; 170 (4): 411-421
- **Optimized Clostridium-directed enzyme prodrug therapy improves the antitumor activity of the novel DNA cross-linking agent PR-104** *CANCER RESEARCH*
Liu, S., Ahn, G., Kioi, M., Dorie, M., Patterson, A. V., Brown, J. M.
2008; 68 (19): 7995-8003
- **In vivo H-1 magnetic resonance spectroscopy of lactate in patients with Stage IV head and neck squamous cell carcinoma** *49th Annual Meeting of the American-Society-for-Therapeutic-Radiology-and-Oncology (ASTRO)*
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- **High-dose single-fraction radiotherapy: Exploiting a new biology?** *INTERNATIONAL JOURNAL OF RADIATION ONCOLOGY BIOLOGY PHYSICS*
Brown, J. M., Koong, A. C.
2008; 71 (2): 324-325
- **Homologous recombination is the principal pathway for the repair of DNA damage induced by tirapazamine in mammalian cells** *CANCER RESEARCH*
Evans, J. W., Chernikova, S. B., Kachnic, L. A., Banath, J. P., Sordet, O., Delahoussaye, Y. M., Treszezamsky, A., Chon, B. H., Feng, Z., Gu, Y., Wilson, W. R., Pommier, Y., Olive, et al
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- **What causes the radiation gastrointestinal syndrome?: overview.** *International journal of radiation oncology, biology, physics*
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- **Targeting tumors with hypoxia-activated cytotoxins** *FRONTIERS IN BIOSCIENCE-LANDMARK*
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- **Tumor hypoxia in cancer therapy** *OXYGEN BIOLOGY AND HYPOXIA*
Brown, J. M.
2007; 435: 297-?
- **Hypoxia: Importance in tumor biology, noninvasive measurement by imaging, and value of its measurement in the management of cancer therapy** *INTERNATIONAL JOURNAL OF RADIATION BIOLOGY*

- Tatum, J. L., Kelloff, G. J., Gillies, R. J., Arbeit, J. M., Brown, J. M., Chao, K. S., Chapman, J. D., Eckelman, W. C., Fyles, A. W., Giaccia, A. J., Hill, R. P., Koch, C. J., Krishna, et al
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- **Use of three-dimensional tissue cultures to model extravascular transport and predict in vivo activity of hypoxia-targeted anticancer drugs** *JOURNAL OF THE NATIONAL CANCER INSTITUTE*
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 - **Mature results from a randomized phase II trial of cisplatin plus 5-fluorouracil and radiotherapy with or without tirapazamine in patients with resectable stage IV head and neck squamous cell carcinomas** *CANCER*
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Brown, J. M., Attardi, L. D.
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 - **Exploiting tumour hypoxia in cancer treatment** *NATURE REVIEWS CANCER*
Brown, J. M., William, W. R.
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