Mircea Ivan, M.D., Ph.D.

Work Address: Indiana University
Walther Hall
980 W. Walnut Street, Room C225
Indianapolis, IN 46202.
Tel: 317-274-0322
E-mail: mivan@iu.edu

Present Position:

- Associate Professor (with Tenure), Department of Medicine, Indiana University School of Medicine, Indianapolis, IN, USA.
- Secondary Appointment: Department of Microbiology and Immunology, Indiana University, Indianapolis.
- Member, Breast Cancer Program, "Melvin and Bren Simon Cancer Center", Indiana University.

Previous Positions:

08/2008-06/2014: Assistant Professor of Medicine, Division of Hematology/Oncology, Indiana University, Indianapolis, Indiana

11/2003-07/2008: Assistant Professor of Medicine and Investigator, Molecular Oncology Research Institute, Tufts University School of Medicine, Tufts Medical Center, Boston, MA

06/2002 – 10/2003: Scientist, Aveo Pharmaceuticals, Inc., Cambridge, MA

Postdoctoral training:

2002: Instructor in medicine, Dana-Farber Cancer Institute and Harvard Medical School, Boston, MA.

1998-2002: Postdoctoral Fellow Dana-Farber Cancer Institute and Harvard Medical School, Boston, MA.

Education:

1994-1998: Ph.D. degree: Department of Pathology, Cardiff University, Cardiff, Wales, UK.
Thesis title: "*In Vitro* Models of Thyroid Neoplasia"
Advisor: Professor David Wynford-Thomas

1987-1993: "Carol Davila" University of Medicine and Pharmacy, Bucharest, Romania (M.D. awarded 1993).

1982-1986: "Dr. Ioan Mesota" National College/Lyceum, Brasov, Romania (Baccalaureate).

Awards, Honors and Distinctions:

2016 *NEJM, Cell, JAMA* editorials include my 2001 and 2002 articles on a short list of key publications essential for 2016 Lasker Awards

2014 Indiana University Department of Medicine Outstanding Young Investigator

2009 American Cancer Society (ACS) Research Scholar Award

2008 Association for International Cancer Research Award (declined, to accept the overlapping ACS funding)

2008 "Elsa U. Pardee" Foundation Award

2005 American Association for Cancer Research Career Development Award, Pancreatic Cancer Action Network

2003 Research Article in the journal "Science" featured as "Hot Paper" by "The Scientist"; over 2600 ISI citations to date

2001 Research Article in the journal "Science" selected as *paper of exceptional impact* by "Faculty of 1000"

1994 Overseas Research Student Award - United Kingdom.

1993 Graduated top 3%, "Carol Davila" University of Medicine and Pharmacy, Bucharest, Romania

1990 National Merit Scholarship, Carol Davila" University of Medicine and Pharmacy

1990-1993 "Carol Davila" University Council and Senate (student representative)

1986 Accepted with the 2nd highest score: "Carol Davila" University of Medicine and Pharmacy (approx. 3,500 candidates)

1986 Valedictorian, "Dr. Ioan Mesota" National College, Brasov, Romania.

Publications (*citations: approx. 7,900 ISI-Thompson; 11,400 Google Scholar*)

1. Sodi V, Bacigalupa Z, Ferrer C, Lee J, Gocal W, Mukherjee D, Wellen KE, Ivan M, Reginato M. Nutrient sensor O-GlcNAc transferase controls cancer lipid metabolism via SREBP-1 regulation. *Oncogene* 2017 (accepted).
2. Ivan M, Kaelin WG Jr. The EGLN-HIF O_2 Sensing System: Multiple Inputs and Feedbacks. *Mol Cell. 2017* Jun 15;66(6):772-779. doi: 10.1016/j.molcel.2017.06.002 (**corresponding author**).

3. Brady LK, Wang H, Radens CM, Bi Y, Radovich M, Maity A, Ivan C, Ivan M, Barash Y, Koumenis C. Transcriptome Analysis of Hypoxic Cancer Cells Uncovers Intron Retention in EIF2B5 as a Mechanism to Inhibit Translation. *PLoS Biol.* 2017 Sep 29;15(9):e2002623. doi: 10.1371/journal.pbio.2002623.
4. Wang X, Ivan M, Hawkins S. The Role of MicroRNA Molecules and MicroRNA-Regulating Machinery in the Pathogenesis and Progression of Epithelial Ovarian Cancer. *Gynecol Oncol.* 2017 Aug 30. pii: S0090-8258(17)31266-0. doi: 10.1016/j.ygyno.2017.08.027.
5. Wu X, Tudoran OM, Calin GA, Ivan M. The Many Faces of Long Noncoding RNAs in Cancer. *Antioxid Redox Signal.* 2017 Aug 10. doi: 10.1089/ars.2017.7293 (**corresponding author**).
6. Clinkenbeard EL, Hanudel MR, Stayrook KR, Appaiah HN, Farrow EG, Cass TA, Summers LJ, Ip CS, Hum JM, Thomas JC, Ivan M, Richine BM, Chan RJ, Clemens TL, Schipani E, Sabbagh Y, Xu L, Srour EF, Alvarez MB, Kacena MA, Salusky IB, Ganz T, Nemeth E, White KE. EPO stimulates Fibroblast growth factor-23 (FGF23), revealing novel roles for bone and bone marrow *Haematologica* 2017 Aug 17. pii: haematol.2017.167882. doi: 10.3324/haematol.2017.167882.
7. Davis HM, Pacheco-Costa R, Atkinson EG, Brun LR, Gortazar AR, Harris J, Hiasa M, Bolarinwa SA, Yoneda T, Ivan M, Bruzzaniti A, Bellido T, Plotkin LI. Disruption of the Cx43/miR21 pathway leads to osteocyte apoptosis and increased osteoclastogenesis with aging. *Aging Cell.* 2017 Jun;16(3):551-563. doi: 10.1111/acel.12586.
8. Logsdon DP, Luo M, Grimard M, Shahda S, Jiang Y, Tong Y, Yu Z, Zyromski N, Schipani E, Carta F, Supuran CT, Korc M, Ivan M, Kelley MR, Fishel ML; Regulation of HIF1α under Hypoxia by APE1/Ref-1 Impacts CA9 Expression: Dual-Targeting in Patient-Derived 3D Pancreatic Cancer Models. *Mol Cancer Ther.* 2016 Nov;15(11):2722-2732. Epub 2016 Aug 17. PMID: 27535970; PMCID: PMC5097013.
9. Redis RS, Vela LE, Lu W, Ferreira de Oliveira J, Ivan C, Rodriguez-Aguayo C, Adamoski D, Pasculli B, Taguchi A, Chen Y, Fernandez AF, Valledor L, Van Roosbroeck K, Chang S, Shah M, Kinnebrew G, Han L, Atlasi Y, Cheung LH, Monroig P, Ramirez MS, Catela-Ivkovic T, Van L, Ling H, Gafa R, Kapitanovic S, Lanza G, Bankson JA, Huang P, Lai SY, Rosenblum MG, Radovich M, Ivan M, Bartholomeusz G, Liang H, Fraga M, Hanash S, Berindan-Neagoe I, Lopez-Berestein G, Ambrosio AL, Gomes Dias SM, Calin GA. Allele-specific reprograming of cancer metabolism by the long non-coding RNA, CCAT2. *Mol Cell.* 2016 Feb 3. pii:S1097-2765(16)00016-2. doi:10.1016/j.molcel.2016.01.015. PMID:26853146.

10. Mantel CR, O'Leary HA, Chitteti BR, Huang X, Cooper S, Hangoc G, Brustovetsky N, Srour EF, Lee MR, Messina-Graham S, Haas DM, Falah N, Kapur R, Pelus LM, Bardeesy N, Fitamant J, Ivan M, Kim K-S, Broxmeyer HE. Enhancing hematopoietic stem cell transplantation efficacy by mitigating oxygen shock. *Cell* 2015 Jun 9. pii: S0092-8674(15)00574-7. doi: 10.1016/j.cell.2015.04.054; PMID:26073944.
11. Brahimi-Horn MC, Giuliano S, Saland E, Lacas-Gervais S, Sheiko T, Pelletier J, Bourget I, Bost F, Féral C, Boulter E, Tauc M, Ivan M, Garmy-Susini B, Popa A, Mari B, Sarry JE, Craigen WJ, Pouysségur J, Mazure NM. Knockout of Vdac1 activates HIF through ROS generation and induces tumor growth by promoting metabolic reprogramming and inflammation. *Cancer Metab* 2015, 3:8 doi:10.1186/s40170-015-0133-5.
12. Fishel ML, Wu X, Devlin CM, Logsdon DP, Jiang Y, Luo M, He Y, Yu Z, Tong Y, Lipking KP, Maitra A, Rajeshkumar NV, Scandura G, Kelley MR, Ivan M. Apurinic/Apyrimidinic Endonuclease/ Redox Factor-1 (APE1/Ref-1) Redox Function Negatively Regulates NRF2. *J Biol Chem.* 2015 Jan 30; 290(5):3057-68. doi:10.1074/jbc.M114.621995 pii: jbc.M114.621995 PMID: 25492865 (**corresponding author**).
13. Gee HE, Ivan C, Calin GA, Ivan M. Hypoxamirs and Cancer: from Biology to Targeted Therapy. *Antioxid Redox Signal*. 2014; Sep 10;21(8):1220-38. doi: 10.1089/ars.2013.5639. (**corresponding author; featured article)**
14. Lakhter AJ, Hamilton J, Dagher PC, Mukkamala S, Hato T, Dong XC, Mayo LD, Harris RA, Shekhar A, Ivan M, Brustovetsky N, Naidu SR. Ferroxitosis: A Cell Death from Modulation of Oxidative Phosphorylation and PKM2-Dependent Glycolysis in Melanoma. *Oncotarget* 2015.
15. Rupaimoole R, Wu S, Pradeep S, Ivan C, Pecot C, Gharpure K, Sidalaghatta Nagaraja A, Armaiz-Pena GN, Michael McGuire , Zand B, Dalton H, Filant J, Bottsford-Miller J, Lu C, Sadaoui N, Mangala LS, Taylor M, van den Beucken T, Koch E, Rodriguez-Aguayo C, Huang L, Bar-Eli M, Wouters B, Radovich M, Ivan M, Calin GA, Zhang W, Lopez-Berestein G, Sood AK. Hypoxia Mediated Downregulation of miRNA Biogenesis Promotes Tumor Progression. *Nature Communications* 2014 5:5202; DOI: 10.1038/ncomms6202.
16. van den Beucken T, Koch E, Chu K, Rupaimoole R, Prickaerts P, Adriaens M, Voncken JW, Harris AL, Buffa F, Haider S, Starmans M, Yao C, Ivan M, Ivan C, Pecot C, Boutros P, Sood AK, Koritzinsky M, Wouters B. Hypoxia promotes stem cell phenotypes and poor prognosis through epigenetic regulation of DICER. *Nature Communications* 2014 5:5202 DOI: 10.1038/ncomms6203.
17. Gökmen-Polar Y, Goswami CP, Toroni RA, Sanders KL, Mehta R, Sirimalle U, Tanasa B, Shen C, Li L, Ivan M, Badve S, Sledge GW. Gene Expression Analysis Reveals Distinct

Pathways of Resistance to Bevacizumab in Xenograft Models of Human ER-Positive Breast Cancer. *J Cancer*, 2014 Aug 15;5(8):633-45. doi: 10.7150/jca.8466.

18. Radovich M, Clare SE, Atale R, Pardo I, Hancock BA, Solzak JP, Kassem N, Mathieson T, Storniolo AV, Rufenbarger C, Lillemoe HA, Henry JE, Hilligoss EE, Sakarya O, Siddiqui AS, Breu H, Hyland FC, Hickenbotham M, Zhu J, Glasscock J, Badve S, Ivan M, Liu Y, Sledge GW, Schneider BP. Characterizing the biological heterogeneity of triple-negative breast cancers using microdissected normal ductal epithelium and RNA-sequencing. *Breast Cancer Res Treat.* 2014 Jan;143(1):57-68. doi: 10.1007/s10549-013-2780-y; PMID: 24292813
19. Ferdin J, Nishida N, Wu X, Nicoloso MS, Shah MY, Devlin C, Ling H, Shimizu M, Kumar K, Cortez MA, Ferracin M, Bi Y, Yang D, Czerniak B, Zhang W, Schmittgen TD, Voorhoeve MP, Reginato MJ, Negrini M, Davuluri RV, Kunej T, Ivan M, Calin GA. HINCUTs in Cancer: Hypoxia-Induced Non-Coding Ultraconserved Transcripts. *Cell Death Differ*, 2013 Dec;20(12):1675-87. doi: 10.1038/cdd.2013.119. PMID: 24037088; PMCID: PMC3824588 (**joint-corresponding author**).
20. Barlev N, Lezina L, Purmessur N, Antonov A, Ivanova T, Karpova E, Krishan K, Ivan M, Aksenova V, Tentler D, Garabadgiu A, Melino G. miR-16 and miR-26a target checkpoint kinases Wee1 and Chk1 in response to p53 activation by genotoxic stress. *Cell Death Disease* 2013 Dec 12;4:e953. doi:10.1038/cddis.2013.483
21. Kumar K, Wigfield S, Gee HE, Devlin CM, Singleton D, Li JL, Buffa F, Huffman M, Sinn AL, Silver J, Turley H, Leek R, Harris AL, Ivan M. Dichloroacetate Reverses the Hypoxic Adaptation to Bevacizumab and Enhances its Antitumor Effects in Mouse Xenografts. *J Mol Med,* June 2013, 91(6): 749-758 (**corresponding author**).
22. Shao M, Hollar S, Chambliss D, Schmitt J, Emerson R, Chelladurai B, Perkins S, Ivan M, Matei D. Targeting the Insulin Growth Factor and the Vascular Endothelial Growth Factor Pathways in Ovarian Cancer. *Mol Cancer Ther* 2012 11(7):1576-86 PMID:22700681.
23. Devlin CM, Tim Lahm T, Hubbard WC, Van Demark M, Wang K, Wu X, Bielawska A, Obeid L, Ivan M, Petrache I. A Dihydroceramide-Based Response to Hypoxia. *J Biol Chem*, 2011 Nov 4;286(44):38069-78 PMID: 21914808; PMCID: PMC3207482 (**joint corresponding author**).
24. Gorospe M, Tominaga K, Wu X, Fähling M, Ivan M. Posttranscriptional control of the hypoxic response by RNA-binding proteins and microRNAs. *Front Mol Neurosci*, 2011 2011;4:7-14. PMID: 21747757; PMCID: PMC3130151

25. Fishel ML, Jiang Y, Rajeshkumar NV, Scandura G, Sinn AL, He Y, Shen C, Jones DR, Pollok K, Ivan M, Maitra A, Kelley MR. Impact of APE1/Ref-1 Redox Inhibition on Pancreatic Tumor Growth. *Mol Cancer Ther* 2011;10 1698-1708.
26. Shao M, Rossi S, Chelladurai B, Ntukogu O, Ivan M , Calin GA, Matei DE. PDGF Induced MicroRNA Alterations in Cancer Cells. *Nucl Acid Res* 2011. May 1;39(10):4035-4047.
27. Devlin C, Simona Greco S, Fabio Martelli F, Ivan M. miR-210: More than a Silent Player in Hypoxia. *IUBMB Life,* 2011 Feb;63(2):94-100. doi: 10.1002/iub.427 **(corresponding author)**.
28. Rao X, Di Leva G, Li M, Fang F, Devlin CM, Hartman-Frey C, Burow ME, Ivan M, Croce CM, Nephew KP. MicroRNA-221/222 Confers Breast Cancer Fulvestrant Resistance by Regulating Multiple Signaling Pathways. *Oncogene* 2011 Mar 3;30(9):1082-97.
29. Cortez MA, Ivan C, Zhou P, Xue Wu, Ivan M, Calin GA. microRNAs in Cancer: From Bench to Bedside. *Adv Cancer Res* 2010, 2010;108:113-57 PMID: 21034967 **(joint-corresponding author)**.
30. Ivan M, Matei, DE. Blockade of FGF Signaling: Therapeutic Promise for Ovarian Cancer. *Cancer Biol Ther* 2010 Sep 15;10 (5), 505-508.
31. Favaro E, Ramachandran A, McCormick R, Gee H, Blancher C, Crosby M, Devlin C, Blick C, Buffa F, Li J-L, Vojnovic B, Pires de Neves R, Glazer P, Iborra F, Ivan M, Ragoussis J, Harris AL. MicroRNA-210 Regulates Mitochondrial Free Radical Response to Hypoxia and Krebs Cycle in Cancer Cells by Targeting Iron Sulfur Cluster Protein ISCU. *PLoS ONE* 2010 Apr26 5(4): e10345; **(joint-corresponding author).**
32. Fasanaro P, Greco S, Ivan M, Capogrossi MC, Martelli F. microRNA: emerging therapeutic targets in acute ischemic diseases. *Pharmacology & Therapeutics* 2010 Jan;125(1):92-104. Epub 2009 Nov 6.
33. Crosby ME, Glazer PM, Ivan M. "Micro"-management of DNA Repair Genes by Hypoxia. *Cell Cycle* 2009 Dec 15;8(24):4009-10. Epub 2009 Dec 30 **(corresponding author).**
34. Fasanaro P, Greco S, Lorenzi M, Pescatori M, Brioschi M, Kulshreshtha R, Banfi C, Stubbs A, Calin GA, Ivan M, Capogrossi MC, Martelli F. An integrated approach for experimental target identification of hypoxia-induced miR-210. *J.Biol.Chem* 2009 Dec 11; 284(50):35134-43. Epub 2009 Oct 13.
35. Crosby ME, Devlin CM, Glazer PM, Calin GA, Ivan M. Emerging Roles of microRNAs in the Molecular Responses to Hypoxia. *Curr. Pharm. Des.* 2009 15(33):3861-3866 **(corresp. author).**
36. Kim WY, Ivan M. Molecular responses to hypoxia: ancient pathways, clinical promises. *J Cell Mol Med.* 2009 Sep;13(9A):2757-8 **(joint-corresp. author).**

37. Crosby ME, Kulshreshtha R, Ivan M, Glazer PM. microRNA Regulation of DNA Repair Gene Expression in Hypoxic Stress. *Cancer Res.* 2009; 1;69(3):1221-9 **(joint-corresp. author)**.
38. Ivan M. 'microRNA' Review Series: The ongoing microRNA revolution and its impact in biology and medicine. *J Cell Mol Med*. 2008 Sep-Oct;12(5A):1425 **(corresp. author)**
39. Ivan M, Harris AL, Martelli F, Kulshreshtha R. Hypoxia Response and microRNAs: No Longer Two Separate Worlds*. J Cell Mol Med*. 2008 12(5a):1426–1431 **(corresp. author)**.
40. Borger DR, Gavrilescu LC, Bucur MC, Ivan M, DeCaprio JA. AMP-Activated Protein Kinase Is Essential For Transformed Cell Survival during Extended Hypoxic Stress. *Biochem Biophys Res Commun* 2008 May 30; 370(2):230-4 **(corresp. author).**
41. Kulshreshtha R, Davuluri R, Calin GA, Ivan M. A microRNA Component of the Hypoxic Response. *Cell Death and Differentiation* 2008 Apr; 15(4):667-71. (corresponding author).
42. Kulshreshtha R, Ferracin M, Negrini M, Calin GA, Davuluri RV, Ivan M. Regulation of microRNA expression: the Hypoxic Component. *Cell Cycle* 2007 Jun 15; 6(12): 1426-31 **(corresp. author).**
43. Fabbri M, Ivan M, Cimmino A, Negrini M, Calin GA. Regulatory mechanisms of microRNAs involvement in cancer. *Expert Opin Biol Ther.* 2007 Jul; 7 (7): 1009-1019.
44. Black TM, Andrews CL, Kilili G, Ivan M, Tsichlis PN, Vouros P. Characterization of Phosphorylation Sites on Tpl2 Using IMAC Enrichment and a Linear Ion Trap Mass Spectrometer. *J Proteome Res.* 2007 Jun; 6(6):2269-76.
45. Kulshreshtha R, Ferracin M, Wojcik SE, Garzon R, Alder H, Agosto-Perez FJ, Davuluri R, Liu C-G, Croce CM, Negrini M, Calin GA, Ivan M. A MicroRNA Signature of Hypoxia. *Mol. Cell. Biol.* 2007 27(5):1859-67. Epub 2006 Dec 28 **(corresp. author).**
46. Fernandes AF, Guo W, Zhang X, Gallagher M, Ivan M, Taylor A, Pereira P, Shang F. Proteasome-dependent regulation of signal transduction in retinal pigment epithelial cells. *Exp. Eye Res.* 2006 Dec; 83(6):1472-81.
47. Yan Q, T Kamura T, Cai Y, Jin J, Ivan M, Mushegian A, Conaway RC, Conaway JW. Identification of Elongin C and Skp1 sequences that determine cullin selection. *J Biol. Chem*. 2004 Oct 8; 279(41):43019-26.
48. Yang H, Ivan M, Min J-H, Kim W, Kaelin WG. Analysis of the von Hippel-Lindau hereditary cancer syndrome: implications for oxygen sensing. *Methods in Enzymology*. 2004, (381): 320- 335.
49. Ivan M, Haberberger T, Gervasi DC, Michelson K, Gunzler V, Kondo K, Yang H, Sorokina I, Conaway RC, Conaway JW, Kaelin WG. Biochemical purification and pharmacological

inhibition of mammalian prolyl hydroxylase acting on hypoxia-inducible factor. *Proc. Natl. Acad. Sci. USA* 2002 Oct 15; 99 (21):13459-13464.

50. Min JH, Yang H, Ivan M, Gertler F, Kaelin WG, Pavletich NP. Structure of an HIF-1α-pVHL Complex: Hydroxyproline Recognition in Signaling. *Science* 2002; 296 (5574): 1886-9.
51. Hoffman MA, Ohh M, Yang H, Klco JM, Ivan M, Kaelin WG. Von Hippel-Lindau protein mutants linked to type 2C VHL disease preserve the ability to downregulate HIF. *Hum Mol Genet*. 2001; 10(10): 1019-27.
52. Ivan M, Kondo K, Yang H, Kim W, Valiando J, Ohh M, Salic A, Asara JM, Lane WS, Kaelin WG. HIFα targeted for VHL-mediated destruction by proline hydroxylation: implications for O_2 sensing. *Science*. 2001 Apr 20; 292 (5516): 464-8 (research article).
53. Ivan M, Kaelin WG. The von Hippel-Lindau tumor suppressor protein. *Curr Opin Genet Dev*. 2001 Feb; 11 (1): 27-34.
54. Jones CJ, Kipling D, Morris M, Hepburn P, Skinner J, Bounacer A, Wyllie FS, Ivan M, Bartek J, Wynford-Thomas D, Bond JA. Evidence for a telomere-independent "clock" limiting RAS oncogene-driven proliferation of human thyroid epithelial cells. *Mol Cell Biol*. 2000 Aug; 20 (15): 5690-9.
55. Ohh M, Park CW, Ivan M, Hoffman MA, Kim TY, Huang LE, Pavletich N, Chau V, Kaelin WG. Ubiquitination of hypoxia-inducible factor requires direct binding to the beta-domain of the von Hippel-Lindau protein. *Nat Cell Biol*. 2000 Jul; 2 (7): 423-7.
56. Ludgate M, Gire V, Crisp M, Ajjan R, Weetman A, Ivan M, Wynford-Thomas D. Contrasting effects of activating mutations of G□S and the thyrotropin receptor on proliferation and differentiation of thyroid follicular cells. *Oncogene*. 1999 Aug 26; 18(34): 4798-807.
57. Calin GA, Ivan M, Stefanescu D. The difference between p53 mutation frequency in haematological and non-haematological malignancies: possible explanations. *Med Hypotheses.* 1999 Oct; 53(4): 326-8.
58. Ivan M, Ludgate M, Gire V, Bond JA, Wynford-Thomas D. An amphotropic retroviral vector expressing a mutant gsp oncogene: effects on human thyroid cells in vitro. *J Clin Endocrinol Metab*. 1997 Aug; 82(8):2702-9.
59. Ivan M, Bond JA, Prat M, Comoglio PM, Wynford-Thomas D. Activated ras and ret oncogenes induce over-expression of c-met (hepatocyte growth factor receptor) in human thyroid epithelial cells. *Oncogene*. 1997 May 22; 14(20):2417-23.
60. Ham J, Ivan M, Wynford-Thomas D, Scanlon MF. GH3 cells expressing constitutively active Gs alpha (Q227L) show enhanced hormone secretion and proliferation. *Mol Cell Endocrinol*. 1997 Mar 14; 127(1): 41-7.

61. Ivan M, Wynford-Thomas D, Jones CJ. Abnormalities of the P16INK4A gene in thyroid cancer cell lines. *Eur J Cancer*. 1996 Dec; 32A(13): 2369-70.
62. Bond JA, Oddweig-Ness G, Rowson J, Ivan M, White D, Wynford-Thomas D. Spontaneous de-differentiation correlates with extended lifespan in transformed thyroid epithelial cells: an epigenetic mechanism of tumour progression? *Int J Cancer*. 1996 Aug 7;67(4):563-72.
63. Eccles N, Ivan M, Wynford-Thomas D. Mitogenic stimulation of normal and oncogene-transformed human thyroid epithelial cells by hepatocyte growth factor. *Mol Cell Endocrinol*. 1996 Mar 25; 117(2):247-51 (joint-first author).
64. Bond JA, Wyllie FS, Ivan M, Dawson T, Wynford-Thomas D. A variant epithelial sub-population in normal thyroid with high proliferative capacity in vitro. *Mol Cell Endocrinol*. 1993 Jun; 93(2):175-83.

Book Chapters (peer reviewed):

65. Ivan M, Zhong X, Greco S, Martelli F. Emerging Roles of Non-coding RNAs in the Hypoxic Response. In “Hypoxia and Cancer”, Giovanni Melillo (Ed); Springer 2013
66. Ivan M, Huang X. miR-210: Fine-Tuning the Hypoxic Response; in: *Tumor Microenvironment and Cellular Stress; Series: Advances in Experimental Medicine and Biology,* 2013, Vol. 772; 01/2014; 205-227 (Springer) Koumenis, Constantinos; Hammond, Ester; Giaccia, Amato (Eds.); ISBN 978-1-4614-5914-9.

Highly Cited Publications:

1. Ivan M et al, *Science* 2001; > 2800 ISI citations; 3900 Google Scholar
2. Ohh M, et al, *Nat Cell Biol* 2000; > 1,100 ISI citations
3. Ivan M et al, *PNAS* 2002
4. Min JH, et al, *Science* 2002
5. Kulshreshtha R et al, *Mol Cell Biol.* 2007; > 600 ISI, 900 Google Scholar.
6. Crosby ME, et al; *Cancer Res.* 2009

Patents (with USPTO numbers):

1. Method of identifying a compound for treating a hypoxic or ischemic related disorder: 9,766,240; William G. Kaelin, Jr., Mircea Ivan
2. HIFα Prolyl Hydroxylation Assay: 7,985,563 and 8,809,011; William G. Kaelin, Jr., Mircea Ivan

3. Muteins of Hypoxia Inducible Factor Alpha and Methods of Use Thereof: 6,849,718 and 7,361,463; William G. Kaelin, Jr., Mircea Ivan
4. Pharmaceuticals and Methods for Treating Hypoxia and Screening Methods Therefor: 6,855,510; William G. Kaelin, Jr., Mircea Ivan

REVIEWER:

External organizations:

2017: NIH Special Emphasis Panel: Biological Comparisons in Patient-Derived Models of Cancer; ZCA1 SRB - P (O2); UO1 applications

2017: Research Council of Norway

2017: Deutsche Forschungsgemeinschaft and German Cancer Society

2017: Innovation and Technology Commission (ITC), Hong Kong SAR Government

2017: NIH/NCI: Special Emphasis Panel/Scientific Review Group 2017/05 ZCA1 RTRB-U (M1) R; R21/R03 applications

2017: Department of Defense Congressionally Directed Medical Research Programs (CDMRP): Cell Biology-5 Review panel for the FY16 Breast Cancer Research Program (BCRP)

2016: NIH/NCI: Physical Sciences-Oncology Network (PS-ON): ZCA1 TCRB-H J1 S, Physical Sciences-Oncology Projects (U01)

2016: Medical Research Council; Research Councils UK (RCUK)

2016: *Breast Cancer Now* (UK's largest breast cancer research charity)

2016: The NCI Predoctoral to Postdoctoral Fellow Transition Award ZCA1 RTRB-R (A1) R

2016: R15 awards: ONC 1 - Basic Translational IRG

2015: Florida Department of Health's Biomedical Research Programs/Oak Ridge-Associated Universities

2015: NCI Special Emphasis Panel: COLLABORATIVE RESEARCH IN INTEGRATIVE CANCER BIOLOGY (U01) ZCA1 TCRB - T (J2)

2014: NIH/NCI: Oncological Sciences F09A fellowships

2013: Department of Defense Congressionally Directed Medical Research Programs (CDMRP): Breast Cancer Research Program (BCRP) postdoctoral training in cell and molecular biology (TRN-CMB)

2013: Executive Agency for Higher Education, Research, Development and Innovation Funding, Romania (UEFISCDI)

2013: Italian Ministry of Health: Biomedical research panel

2011: Pennsylvania Department of Health (PA DOH)

2011: National Council for Scientific Research of Romania

2011: Danish Council for Independent Research - Medical Sciences

2008: Scientific Committee Member: Chemical Biology Master's program, University of Bucharest, Romania

2006: American Institute of Biological Sciences (AIBS)

2006: France's National Research Agency (Agence Nationale de la Recherche).

Institutional:

2013 - IU School of Medicine Biomedical Research Grant review committee

2013 - Indiana University School of Medicine Awards Committee

2011 - American Cancer Society Institutional Research Grant, Indiana University

2009 - Komen Tissue Bank's Proposal Review Committee member

2009 - 2014: IRB-04, Indiana University School of Medicine

MENTORSHIP:

Indiana University:

Postdoctoral fellows or equivalent:

Xiaoling Zhong, PhD; Reseach Assistant Professor

Cecilia Devlin, PhD; Postdoctoral fellow

Garrett Kinnebrew, MD; Postdoctoral fellow

Kumar Krishan, PhD; Postdoctoral fellow

PhD students (primary mentor or co-mentor):

Xue Wu (2009-2016): Dept. of Microbiology Immunology (primary mentor)

Glenda Scandura (2009-2010): Univ. of Catania, Catania, Italy (co-mentor)

Graduate Student Committees:

Yu-Hsiang Chen (Medical and Molecular Genetics)

Eric Wolf (IBMG/Medical and Molecular Genetics)

Kevin Lange (Biochemistry and Molecular Biology)

Milan Radovic (Medical and Molecular Genetics)

Sneha Surendran (Medical & Molecular Genetics)

Huajia Zhang (Microbiology and Immunology)

Isha Singh (Biochemistry and Molecular Biology)

Jennifer Speth (Microbiology and Immunology)

Summer Research Program in Academic Medicine (Medical students, IUSM):

Melanie Huffman (2010): *Second Prize: SRPAM Contest*
William J Wright scholarship 2012

Adam A. Golas (2009): *Second Prize: SRP in Academic Medicine Contest*
Third Prize: ACP Indiana Chapter Abstract Contest
William J Wright scholarship 2010

Mattie White (2017)

Consultant/mentor for Indiana University Junior Faculty:

Dr. Heiko Koenig, Assistant Professor of Medicine:
"Roles of hypoxia sensing in Acute Myeloid Leukemia"

Dr. Henrique Serezani (K99-R00):
"Role of leukotrienes in mediating Toll-like receptor-induced NFKB activation by G_{ai}-coupled receptors"

Dr. Sami Naidu, Research Assistant Professor, Immunology and Microbiology

Mahua Dey MD, Assistant Professor of Neurological Surgery

Dr. Nutan Prasain (K99/R00):
"Reprogramming and use of hiPS cells for the derivation of endothelial colony forming cells (ECFCs)"

Dr. Tim Lahm:
"Effects of estrogens on HIF-1α activation in lung endothelial cells"

Mentorship at Tufts New England Medical Center:

Postdoctoral fellows:

Ritu Kulshreshtha, PhD;
Current position: Associate Professor, Department of Biochemical Engineering and Biotechnology, Indian Institute of Technology (IIT), Delhi, India

Cristina M. Bucur, MD; currently practicing neurologist, Bucharest, Romania

External Advisor, Examiner for PhD or MSc theses:

2014: PhD: Neha Nagpal, Indian Institute of Technology, New Delhi, India

2012: MSc: Nicolas Chuvin: BioSciences program, University of Lyon, France

2010: PhD: Jaana Hyvärinen, University of Oulu, Finland

Journal Reviewer:

Cancer-related: Cancer Discovery, Cancer Research, Oncogene, Blood, Clinical Cancer Research, Molecular Cancer Research, Critical Reviews in Oncology/Hematology, British Journal of Cancer, International Journal of Cancer, Neoplasia, Molecular Cancer, Biochimica & Biophysica Acta (Reviews on Cancer), BMC Cancer, Journal of Cancer, Cytokine, Molecular Oncology.

Broader audience: Nature Communications, Proc. Natl. Acad. Sci. U S A, Aging Cell, EMBO Journal, Molecular and Cellular Biology, Scientific Reports, PLoS Genetics, PLoS ONE, FASEB Journal, FEBS Letters, Journal of Molecular Medicine (Berlin), Experimental Cell Research, BMC Medical Genomics, Journal of Cellular and Molecular Medicine, Molecular Therapy - Nucleic Acids, Pflugers Archiv-European Journal of Physiology, Trends in Molecular Medicine, Current Drug Targets, Free Radical Biology & Medicine.

Other: Neuroscience, Neuroscience Letters, Chemical Science (Published by the Royal Society of Chemistry), European Urology, AJP-Lung Cellular and Molecular Physiology; Arteriosclerosis, Thrombosis, and Vascular Biology; Journal of Clinical Endocrinology and Metabolism, Diabetes.

Editorial Activity:

Senior Associate Editor (since *2016*):

- *Journal of Cellular and Molecular Medicine (Wiley);* **IF (2016): 4.94**

Editorial Board Member:

- *Journal of Biological Chemistry (2012-2017);*
- *Journal of Cellular and Molecular Medicine (2009-)*
- *IUBMB Life (2013-)*

Series Guest Editor:

- "*microRNAs in Human Disease", Journal of Cellular and Molecular Medicine (2008)*
- *"Hypoxia in Human Disease", Journal of Cellular and Molecular Medicine (2009)*

Teaching:

- Course director: MICR-J842, Indiana University IBMG program (since 2013)
- J842 – Neoplastic Determinants Course: lecturer 2012
- G715 – Biochemical Basis of Biological Processes: lecturer 2015

Professional memberships:

- American Association for Cancer Research (2005-)
- Tumor Microenvironment Working Group AACR (2009-)
- The American Society for Biochemistry and Molecular Biology (2012-)

Selected Invited Lectures and Oral Presentations:

02/2017: Kidney Cancer Program Seminar, Dana-Farber/Harvard Cancer Center, Boston.
Title: "The Noncoding Arm of Oxygen Sensing"

11/2016: Distinguished Lecture Series, Department of Experimental Therapeutics at MD Anderson Cancer Center, Houston, Texas.
Title: "*The Noncoding Branch of Oxygen Sensing"*

04/2016: National Institute on Aging (NIA), Biomedical Research Center, Baltimore.
Title: *"The Noncoding Arm of the Hypoxic Response: Novel Regulators of Metabolism"*

04/2016: Universite Catholique de Louvain, Faculte de Medecine, Louvain, Belgium.
Title: *"The Expanding Universe of Hypoxia Sensing: From HIF-Prolyl Hydroxylases to Noncoding RNAs"*

04/2016: The Institute of Biochemistry of the Romanian Academy, Bucharest, Romania.
"The Expanding Universe of Oxygen Sensing: from Prolyl Hydroxylases to Noncoding RNAs"

10/2015**:** Radiobiology and Radiotherapy Research Program seminar, Yale Cancer Center, New Haven CT.
Title: *"Hypoxia-Regulated Noncoding RNAs: Fine-Tuners of the Cancer Landscape"*

05/2015: Non-Coding RNAs: A New Frontier in Biomedical Research Meeting, Ohio State University, Columbus, OH.
Title: *"The Non-coding Arm of the Hypoxic Response"*

04/2015: VIB Vesalius Research Center, University of Leuven, Belgium
Title: *"Fine-tuning the Hypoxic Response with Nonconding RNAs: implication for cell metabolism"*

12/2014: Invited speaker, Institute of Biochemistry (Romanian Academy) Bucharest, Romania
"HypoxamiRs and HypoxaLncRNAs: New Players in Tumorigenesis"

06/2014: Fifth Congress of the Romanian Neuroendocrine Society, Bucharest, Romania (keynote speaker)
Title*: "Hypoxia-Inducible Factors: From Oxygen Sensors to Neuroendocrine Tumors"*

12/2013: “Istituto di Ricovero e Cura a Carattere Scientifico” (IRCCS), Policlinico San Donato, Milan, Italy.

Title*: “Emerging roles of Non-coding RNAs in the Hypoxic Response”*

12/2013 “RNA Metabolism, Cancer, Development and Disease”, Nice (France)

Title*: “LincRNAs: Novel Players in the Hypoxic Response”*

Chairperson: “microRNAs and small RNA in disease”

04/2013: Sanford Burnham Medical Research Institute; Special Seminar; San Diego CA

Title *“The Noncoding Arm of the Hypoxic Response”*

10/2012: Aegean Conference on Tumor Microenvironment & Cellular Stress, Chania, Greece.

09/2012: Molecular Profiling and Innovation in Cancer Workshop - “Iuliu Hatieganu” University of Medicine and Pharmacy Cluj-Napoca, Romania (session chair)

06/2012: 10th World Congress of the International Society of Adaptive Medicine (ISAM), Bucharest, Romania (session chair).

02/2012: Molecular Pharmacology, Physiology & Biotechnology; Brown University, Providence, Rhode Island.

11/2011: Cancer Biology Seminar Series, MD Anderson Cancer Center, Houston, TX.

12/2010: Biocenter Oulu Doctoral Program Advanced Course, Oulu University, Finland.

12/2010: Drug Discovery Graduate School seminar, University of Turku, Finland.

09/2010: National Cancer Institute workshop: “The Molecular Bases of Radiation Resistance of Human Cancers” Bethesda, MD.

09/2010: University of Pennsylvania Radiation Oncology Seminar Series.

10/2009: The 5th International Conference on Tumor Microenvironment (AACR): Progression, Therapy & Prevention; Versailles, France.

10/2009: “Istituto di Ricovero e Cura a Carattere Scientifico” (IRCCS), Policlinico San Donato, Milan, Italy.

05/2009: Leicester University, Leicester, UK.

05/2009: Cancer Studies Interdisciplinary Research Group Seminar, Cardiff University, UK.

05/2009: Cancer Division Seminar, University of Southampton, UK.

05/2009: European Menopause Society (EMAS), London, UK.

11/2008: Medical Sciences Biomedical Colloquium; Indiana University, Bloomington Campus.

09/2008: Department of Molecular Medicine, Karolinska University, Stockholm, Sweden.

09/2008: "Trends and Emerging Fields in Molecular Life Sciences", Bucharest, Romania; Organized by the Romanian Academy (co-chair).

01**/**2008: Keystone Symposium “Molecular, Cellular, Physiological, and Pathogenic Responses to Hypoxia”, Vancouver, British Columbia, Canada.

12/2007: Cleveland Clinic, Department of Molecular Cardiology, Cleveland, OH.

11/2007: University of Vermont Cancer Center, Burlington, Vermont: Environmental Pathology/Cell Signaling Seminar Series.

11/2007: The Genome Research Institute, University of Cincinnati College of Medicine, Cincinnati, OH.

09/2007: Indiana University Cancer Center, Indianapolis.

08/2007: Department of Respiratory Disorders and Allergy. Northwestern University, Chicago.

04/2007: Boston University School of Medicine, Department of Hematology - Oncology, Boston.

02/2007: Tufts University (Medford Campus), Department of Biology Spring Seminar Series.

03/2006: New York Academy of Sciences Symposium "Life without O_2: Molecular Mechanisms of Hypoxia"

11/2004: COSAT/PRD seminar, Johnson and Johnson Drug Discovery Group, Raritan, NJ.

05/2003: Lineberger Cancer Center, University of North Carolina at Chapel Hill, NC.

04/2003: University of Massachusetts Medical School, Worcester, MA.

09/2001: Fibrogen, Inc, South San Francisco, CA.

05/2001: Proteolysis and Biological Control Meeting, Cold Spring Harbor, NY.

05/2001: Montefiore Medical Center, Albert Einstein College of Medicine, NY.

CURRENT FUNDING:

04/17-03/21: Veterans Affairs - Merit Review (K. March)

Functional and Mechanistic Analysis of Mesenchymal Stem Cell Secretome to Ameliorate Ischemic Damage of Rodent Hearts in situ and Human Myocardium-on-a-Chip

Role: Co-investigator, 10% effort

09/17-08/19: NIH, Exploratory/Developmental Bioengineering Research Grants (R. Pili)

R21 CA213977-01A1: *Epigenetic modulation of SEC24D and circulating miR-605 in renal cell carcinoma*

Role: Co-investigator, 5% effort

2013-2018: NIH/NCI (M. Kelley/M. Fishel)

1R01CA167291-01A1: *Novel Role of Ref-1 in Pancreatic Cancer Etiology and Progression*

Role: Co-investigator, 3% effort

2014-2018: NIH/NHLBI (H. Broxmeyer)

R01HL056416: *Mechanisms of Synergistic Regulation of Stem/Progenitors*.

Role: Co-investigator, 5% effort

2015-2019: NIH/NIAMS (L. Plotkin)

1R01AR067210-01: *Osteocyte apoptosis and regulation of bone resorption with aging*

Role: Co-investigator, 3% effort

09/15-08/19: NIH/NEI: (M. Grant)

R01EY025383: *LXR as a novel therapeutic target in diabetic retinopathy*

Role: Co-investigator, 7.5% effort

10/16-9/17: Leukemia & Lymphoma Society - New Idea Award (H. Konig)

Delineating signaling pathways that coordinate the cytotoxic response of acute myeloid leukemia cells in the presence of hypoxic gradients

Role: Co-Investigator, 5% effort

COMPLETED FUNDING

06/11-05/17: NIH/NCI (M. Ivan)

1R01 CA155332-01A1 *Role of Hypoxia-Inducible miR-210 in Tumor Metabolism* (PI: M. Ivan).

2012-2015: VA Merit: *Adipose Stromal Cells and Vasculogenesis: Tissue Perfusion and Islet Survival* (PI: Keith March; Ivan co-investigator).

2009-2013: American Cancer Society Research Scholar grant: "*Role of miR-210 in the Hypoxia Response and Tumorigenesis*" (PI: Ivan).

2012-2015: "*Overcoming Resistance to Antiangiogenic Drugs in Glioblastoma Multiforme by Interfering with Tumor Metabolism*" - IU Clinical and Translational Sciences Institute (CTSI) pilot grant (PI: M. Ivan & K. Pollok).

2015-2016: "*Developmental Adaptation to Chronic Hypoxia*" – IUCRG grant, PIs: R. Tepper, M. Ivan & K.P. Nephew.

2008-2010: Indiana University Cancer Center Grant: "*Role of miR-210 in breast cancer*" (IU Simon Cancer Center Translational Research Acceleration Collaboration - ITRAC system) (PI: M. Ivan).

2008-2009: "Elsa U. Pardee" Foundation Award for Cancer Research: "*Roles of microRNAs in the Response to Hypoxia*" (PI: M. Ivan).

2009**:** Association for International Cancer Research Grant (PI: M. Ivan) (declined due to overlap).

2005-2007: American Association for Cancer Research (AACR) Career Development Award for Pancreatic Cancer Research (PI: M. Ivan).

OTHER FUNDING (institutional, industry)

2013-2014: "*Roles of Hypoxia-Regulated Linc-RNAs in Pancreatic Cancer*"; Indiana University Pancreatic Cancer Signature Center Initiative (PI: Ivan)

2011-2012: "*Therapeutic Strategies in Pancreatic Cancer Centered around Targeting of Ref-1*" IU Simon Cancer Center Translational Research Acceleration Collaboration - ITRAC system (PI: M. Fishel, M. Ivan)

2007-2008: Aveo Pharmaceuticals, Inc., Cambridge, MA

2006-2007: The Center for Gastroenterology Research on Absorptive and Secretory Processes (GRASP) pilot project award for basic research P30 DK34928 **(**renewed by competition 2007-2008) (PI: M. Ivan)

2004-2005: "Earl P. Charlton Fund" Research Award (Tufts Medical Center) (PI: M. Ivan)

2004-2005: Sponsored Research Project - Protein Forest, Inc, Watertown, MA (PI: M. Ivan).