

## DAVID J. DUFFY, Ph.D.

Assistant Professor of Wildlife Disease Genomics



I have always been fascinated by how genetic programs can give rise from a single cell to the complexity of animal bodies, and how the dysregulation of these programs leads to disease. My research interests lie primarily in deciphering cellular signaling networks that drive wildlife and human cancer, and determining novel therapeutic treatment options. I employ a range of classical molecular biology and imaging techniques coupled to cutting-edge omic technologies and advanced computational and network-based analyses to understand cancer biology and identify how to block

pro-oncogenic signals.

My early research, utilizing the marine cnidarian *Hydractinia echinata*, investigated how Wnt signaling pathway regulation of development, regeneration and stem cell fate has been evolutionarily conserved through 650 million years of animal evolution. My multi-omic human cancer research informed by cellular signaling and the dysregulation of developmental genes, revealed the global signaling and transcriptional networks of the MYCN oncogene and identified novel therapeutic targets for the childhood cancer neuroblastoma. More recently, I combined my expertise in animal models, evolution and human cancer to employ precision medicine and One Health approaches to tackle a conservation-relevant cancer: sea turtle fibropapillomatosis. The lab's research is primarily focused on employing precision oncology and genomics approaches to determine the genetic, viral and environmental drivers (and their complex interplay) of the sea turtle fibropapillomatosis tumor epizootic (animal epidemic). In addition to molecular tumor research, we are establishing genomic resources and environmental DNA-based detection approaches for Florida's sea turtle species and their viral pathogen, profiling tumor responses to therapeutic treatments and conducting behavioral-based post-surgical recovery and enrichment research. Ultimately, we seek to improve rehabilitation outcomes and inform population level management decisions to mitigate the impact of wildlife diseases on endangered species.

### Education:

- 2006-2010 Ph.D., Zoology, Zoology Department and Ryan Marine Institute, National University of Ireland, Galway, Ireland.
- 2001-2006 B.Sc. in Natural Sciences, specializing in Zoology, Trinity College Dublin, Ireland.

### Professional Experience:

- 2020-Present Assistant Professor of Wildlife Disease Genomics, Whitney Laboratory for Marine Bioscience and Sea Turtle Hospital, University of Florida, USA.
- 2020-Present Assistant Professor, Department of Biology, University of Florida, USA.
- 2022-Present Affiliate Assistant Professor, Department of Biological Sciences, Florida Atlantic University, USA.
- 2017-2020 Courtesy Assistant Professor, Whitney Laboratory for Marine Bioscience and Sea Turtle Hospital, University of Florida, USA.
- 2019-2020 Research Scientist, Systems Biology Ireland, University College Dublin, Ireland.
- 2018-2019 Assistant Professor of Genomics, Department of Biological Sciences, University of Limerick, Ireland.

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- 2017-2018 Marie Curie Fellow, Marine Ecology and Fisheries Genetics Laboratory, Environment Centre Wales, Bangor University, UK.
- 2015-2017 Post-doctoral associate, Whitney Laboratory for Marine Bioscience and Sea Turtle Hospital, University of Florida, USA.
- 2011-2015 Post-doctoral researcher (Level 1 and 2), Systems Biology Ireland, University College Dublin, Ireland.

#### **Research Interests:**

- Wildlife disease
- Cancer research
- Precision oncology
- Environmental DNA
- Genomics
- Species conservation

#### **Membership in Professional Societies:**

- International Sea Turtle Society (ISTS, <https://internationalseaturtlesociety.org>)
- Florida Marine Turtle Permit Holder (<http://myfwc.com/license/wildlife/marine-turtle-permit>).
- Issued by the Florida Fish and Wildlife Conservation Commission.
- British Chelonia Group (BCG, <http://www.britishcheloniagroup.org.uk>)
- European Association for Cancer Research (EACR; <http://www.eacr.org>).
- Irish Association for Cancer Research (IACR; <https://www.iacr.ie>).
- Society for Developmental Biology (<http://www.sdbonline.org>).
- Irish Network of Developmental Biologists (<https://sites.google.com/site/indbweb/home>).
- Coordinating Action Systems Medicine (CASyM; <https://www.casym.eu>). I am an active participant, attending meetings in Ljubljana and Genoa as an invited speaker and an expert panel member, respectively. I was also a reviewer for the interim CASyM road map report to the European Commission; The CASyM roadmap: Implementation of Systems Medicine across Europe (2014), [https://www.casym.eu/lw\\_resource/datapool/\\_items/item\\_328/roadmap\\_1.0.pdf](https://www.casym.eu/lw_resource/datapool/_items/item_328/roadmap_1.0.pdf).
- Infrastructure for Systems Biology Europe (ISBE; <http://project.isbe.eu/>). Technology and Science Watch Committee (for next generation sequencing technologies), nominated as a member due to my sequencing expertise.

#### **Grant Review, Policy and University Committee Services**

- Invited reviewer of a marine turtle research permit application for the Florida Fish and Wildlife Conservation Commission (FWC), Feb. 2022.
- South East Regional Sea Turtle Meeting (SERSTM) 2022, Scientific Program Committee member and session chair, Nov. 2021 – Feb. 2022.
- My lab and hospital group established, organized and hosted the inaugural Sea Turtle Fibropapillomatosis Research Symposium (STFPRS) 2021, an international symposium, October 2021.
- A Director of Wildlife Rehabilitation Ireland (WRI) 2020 – Present.
- Reviewer for the Dutch Cancer Society (KWF) 2019 Research Projects Call.
- Member of the University of Limerick's Department of Biological Sciences Athena SWAN extended charter committee.

- Course Review Board Member of the University of Limerick's Bioscience undergraduate B.Sc. degree.
- Reviewer for the Multidisciplinary approaches to the modelling of complex biological processes (Systems Biology) Call. Joint funding bodies: Cancer TMOI (Theme-based Multi-Organization Institute) of the French National Alliance for Life and Health Sciences (AVIESAN) and the French National Cancer Institute (INCa).

#### Peer Reviewer for the Following Journals

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|--|--|----------------------|
| - Oncogene                               | - Conservation Biology                       | - Growth Factors     |
| - Briefings in Bioinformatics            | - Molecular Oncology                         | - Cancers            |
| - Journal of Pharmacy and Pharmacology   | - PlosOne                                    | - Neoplasia          |
| - Journal of Health Informatics Research | - Biological Conservation                    | - Bioessays          |
| - Cellular and Molecular Life Sciences   | - Nucleic Acid Therapeutics                  | - Oncotarget         |
| - Journal of Wildlife Diseases           | - Theranostics                               | - Animals            |
| - Comparative Clinical Pathology         | - Molecular Oncology                         | - Scientific Reports |
| - Royal Society Open Science             | - Annals of the New York Academy of Sciences |                      |
| - Journal of Comparative Physiology B    | - Veterinary Research Communications         |                      |

Associate Editor (invited), Frontiers in Conservation Science

#### **Teaching & Mentoring**

- Supervised interns (including NSF REU, Erasmus and Connect-123 interns), undergraduate, MSc and PhD students and post-baccs and post-docs, guiding them from understanding the background of a topic, through project design, experiments, analysis, dissemination and thesis writing.
- I have supervised 4 PhD students (Aleksandar Krstic, Jessica Farrell, Liam Whitmore, Thomas Schwarzl), 16 MSc/BSc students and 3 post-baccs.
- I also currently serve on the PhD Committee of three additional graduate students, Costanza Manes (University of Florida), Christopher Nolte (University of Florida) and Heather Seaman (Florida Atlantic University).
- I am currently supervising two postdocs, Dr. Narges Mashkour and Dr. Samantha Koda and Dr. Jessica Farrell.

#### University of Limerick

Undergraduate lecturing modules (lectures, bioinformatics tutorials and teaching labs)

Academic Year 2018-2019:

BY4038 - Cancer Mechanisms, Therapeutics and Molecular Medicine (designed module) 4th year B.Sc. Class size 31. Module leader.

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BY4027 - Current Trends in Biotechnology and Regenerative Medicine (designed module) 4th year B.Sc. Class size 31. Module leader.

BY4037 - Pharmacology and Drug Development (designed module). 4th year B.Sc. Class size 30. Module leader.

BY4075 - Cell Communication and Regulation. 3rd Year B.Sc. Class size 42.

BY4008 - Genetics and Molecular Biology. 2nd Year B.Sc. Class size 106.

ER4011 - Introduction to Environmental and Bioscience. 1st year B.Sc. Class size 180.

### University of Florida

June 2016 – Science communication lecture to Whitney Laboratory National Science Foundation (NSF) Research Experience for Undergraduates (REU) interns. Class size 8.

### Research Support

#### Peer-reviewed Grants

- April 2021 **National Save the Sea Turtle Foundation**, Fibropapillomatosis Disease Biology Training and Research Initiative – Year 2. \$50,000 (€41,249.89).
- March 2021 **Sea Turtle Conservancy, Florida Sea Turtle Grants Program**, Health impact of near-ubiquitous plastic ingestion in Florida's young turtles. May 2021-April 2022. Value: \$26,355.00 (€22,449).
- June 2020 **Irish Research Council Government of Ireland Postgraduate Scholarship**, Determining the environmental factors that enable an otherwise neoplastically benign herpesvirus to overcome host immune responses and induce a tumour epidemic in marine turtles, awarded to graduate student Liam Whitmore. Oct. 2020 to Sept. 2022. Value: €48,000.00 (\$53,909.29).
- April 2020 **National Save the Sea Turtle Foundation**, Fibropapillomatosis Disease Biology Training and Research Initiative – developing the next-generation of genomics-enabled wildlife disease biologists. \$60,000 (€54,876.29).
- April 2019 **Association of Reptilian and Amphibian Veterinarians**, Pharmacokinetics of Mebendazole in Green Sea Turtles (*Chelonia mydas*). April 2019-April 2020. Value: \$3,000 (€2,665.16). Co-PI.
- April 2019 **Friends of Gumbo Limbo, Gordon J. Gilbert Graduate Grant**, Assessing Targeted Therapeutics as Sea Turtle Fibropapilloma Tumor Treatments, awarded to graduate student Jessica Farrell. Value: \$2,500.00 (€2,226.11).
- August 2017 **Marie Skłodowska-Curie actions (MSCA)**, Sêr Cymru II Cofund. SHIELD: Solutions to Human-Induced tumours of wild sea turtles and Establishing eDNA approaches for Long-term bio-Diversity monitoring. Sept. 2017-Aug. 2020. Value: £337,759.00 (€368,844.53).
- March 2017 **Sea Turtle Conservancy**, Florida Sea Turtle Grants Program: Development of an improved scoring method and a simple blood test to predict rehabilitation outcome of Fibropapilloma-afflicted sea turtles. May 2017-April 2018. Value: \$18,348 (€16,955.59).

- March 2016 **Save Our Seas Foundation**, Harnessing advances in human oncology for sea turtle conservation - Novel therapeutic treatments for fibropapilloma tumours. One year project leader grant. Value: \$5,804.00 (€5,269.25).
- April 2015 **Science Foundation Ireland**, Industry Fellowship: Single-cell RNA-seq of in vivo islet cell transdifferentiation: a systems medicine approach to future diabetes treatment strategies. One year fellowship at Genentech Inc., South San Francisco. Value: €94,018.00. Although awarded, I declined this fellowship to pursue FP research at UF.
- March 2015 **UCD Seed Funding Scheme**: MYCN integrative omics reveals neuroblastoma regulatory networks, enables patient stratification and network-based therapeutic target discovery. Travel grant. Value: €840.00.
- Other
- April 2017 **Private citizen donation**, through the University of Florida Foundation Sea Turtle Research and Rehabilitation Fund. \$52,000 (€48,635.53).
- Jan. 2017 **MSCA**, Seal of Excellence Certificate from the European Commission, for the application ADAPT: Adapting evolutionary genomic approaches to enhance precision medicine and therapeutic target discovery for human and wildlife cancers to the Marie Skłodowska-Curie actions call H2020-MSCA-IF-2016.
- Jan. 2017 **EC FP7 OpenAIRE Open Access Pilot**: Retinoic Acid and TGF $\beta$  signalling cooperate to overcome MYCN-induced retinoid resistance. Publication charges grant. Value: €2,270.00.
- July 2016 **EC FP7 OpenAIRE Open Access Pilot**: Wnt signalling is a bi-directional vulnerability of cancer cells. Publication charges grant. Value: €2,000.00.

### Recent Publications

- Farrell, J. A., Whitmore, L., Mashkour, N., Rollinson Ramia, D., Thomas, R. S., Eastman, C. B., Burkhalter, B., Yetsko, K., Mott, C., Wood, L., Zirkelbach, B., Meers, L., Kleinsasser, P., Stock, S., Libert, E., Herren, R., Eastman, S., Crowder, W., Boverly, C., Anderson, D., Godfrey, D., Condrón, N., and **Duffy, D. J.** (2022). Detection and population genomics of sea turtle species via non-invasive environmental DNA analysis of nesting beach sand tracks and oceanic water. Under 2<sup>nd</sup> round of review. Includes the involvement of citizen scientists.
- Whitmore, L., Farrell, J. A., Whilde, J. and **Duffy, D. J.** (2022). Environmental DNA (eDNA): Inadvertent capture of human genomic bycatch data raises consent, privacy and surveillance issues. Submitted.
- Beigzadeh, K., Rieland, J., Eastman, C., **Duffy, D. J.** and Love, B. J. (2022). Characterization of ingested plastic microparticles extracted from sea turtle post-hatchlings at necropsy. Submitted. Invited research paper.
- Romano, D., Garcia-Gutierrez, L., **Duffy, D. J.**, Flaherty, K., Frederick, D. T., Kolch W. and Matallanas D. (2022). Proteasomal downregulation of the pro-apoptotic MST2 pathway contributes to BRAF inhibitor resistance in melanoma. *bioRxiv*: 2022.2002.2021.481296.

- Yetsko, K., Farrell, J., Blackburn, N. B., Whitmore, L., Stammnitz, M. R., Whilde, J., Eastman, C., Rollinson Ramia, D., Thomas, R., Krstic, A., Linser, P., Creer, S., Carvalho, G., Devlin, M., Nahvi, N., Leandro, A. C., deMaar, T. W., Burkhalter, B., Murchison, E.P., Schnitzler, C. and **Duffy, D. J.** (2021). Molecular characterization of a marine turtle tumor epizootic, profiling external, internal and post-surgical regrowth tumors. *Communications Biology*, 4, 152, doi:10.1038/s42003-021-01656-7.
- Farrell, J. A., Yetsko, K., Whitmore, L., Whilde, J., Eastman, C. B., Rollinson Ramia, D., Thomas, R., Linser, P., Creer, S., Burkhalter, B., Schnitzler C., and **Duffy, D. J.** (2021). Environmental DNA monitoring of oncogenic viral shedding and genomic profiling of sea turtle fibropapillomatosis reveals unusual viral dynamics. *Communications Biology*, 4, 565, doi:10.1038/s42003-021-02085-2.
- Farrell, J. A., Whitmore, L. and **Duffy, D.J.** (2021). The promise and pitfalls of environmental DNA and RNA approaches for the monitoring of human and animal pathogens from aquatic sources. *BioScience*, 71 (6), 609-625.
- Krstic, A., Konietzny, A., Halasz, M., Cain, P., Oppermann, U., Kolch, W. and **Duffy, D. J.** (2021). A chemo-genomic approach identifies diverse epigenetic therapeutic vulnerabilities in MYCN-amplified neuroblastoma. *Frontiers in Cell and Developmental Biology*, 9, 922.
- Ní Leathlobhair, M., Yetsko, K., Farrell, J., Iaria, C., Marino, G., **Duffy, D.J.**, and Murchison, E. (2021). Genotype data not consistent with clonal transmission of sea turtle fibropapillomatosis or goldfish schwannoma [version 1; peer review: awaiting peer review]. *Wellcome Open Research* 6(219).
- Page-Karjian, A., Whitmore, L., Stacy, B.A., Perrault, J.R., Farrell, J.A., Shaver, D.J., Walker, J.S., Frandsen, H.R., Rantonen, E., Harms, C.A., Norton, T.M., Innis, C., Yetsko, K. and **Duffy, D.J.** (2021). Fibropapillomatosis and Chelonid Alphaherpesvirus 5 Infection in Kemp's Ridley Sea Turtles (*Lepidochelys kempii*). *Animals* 11(11): 3076.
- Whitmore, L., Yetsko, K., Farrell, J.A., Page-Karjian, A., Daniel, W., Shaver, D.J., Frandsen, H.R., Walker, J.S., Crowder, W., Boverly, C., Rollinson Ramia, D., Burkhalter, B., Ryan, E. and **Duffy, D.J.** (2021). Evolutionary Comparisons of Chelonid Alphaherpesvirus 5 (ChHV5) Genomes from Fibropapillomatosis-Afflicted Green (*Chelonia mydas*), Olive Ridley (*Lepidochelys olivacea*) and Kemp's Ridley (*Lepidochelys kempii*) Sea Turtles. *Animals* 11(9): 2489.
- Whilde, J., Whitmore, L., Yang, C., Eastman, C., Rollinson, D., Thomas, R., Burkhalter, B., Martindale, M. Q. and **Duffy, D. J.** (2021). Effect of enrichment on the behaviour of juvenile green turtles (*Chelonia mydas*) in a rehabilitation facility in Florida. *Testudo*, 9 (3), 64-79.
- Frandsen, H. R., Wilson, H. M., Walker, J. S., Purvin, C. M., Dutton, P., Lacasella, E. L., Stacy, B. A., Whitmore, L., Farrell, J.A., **Duffy, D.J.** and Shaver, D.J. (2021). First olive ridley sea turtle (*Lepidochelys olivacea*) stranding in Texas, USA and identification of chelonid alphaherpesvirus 5 (ChHV5) variant present in tumor tissue. *Herpetological Review* 52 (3), 492-499.
- Eastman, C., Farrell, J., Whitmore, L., Rollinson Ramia, D., Thomas, R., Prine, J., Eastman, S., Osborne, T. Z., Martindale, M. Q., and **Duffy, D. J.** (2020). Plastic Ingestion in Post-hatchling Sea Turtles: Assessing a Major Threat in Florida Near Shore Waters. *Frontiers in Marine Science*. doi.org/10.3389/fmars.2020.00693
- Yetsko, K., Farrell, J., Stammnitz, M. R., Whitmore, L., Whilde, J., Eastman, C., Rollinson Ramia, D., Thomas, R., Krstic, A., Linser, P., Creer, S., Carvalho, G., Burkhalter, B., Murchison, E.P., Schnitzler, C. and **Duffy, D. J.** (2020). Mutational, transcriptional and viral shedding dynamics of the marine turtle fibropapillomatosis tumor epizootic. *bioRxiv* (Preprint). DOI: 10.1101/2020.02.04.932632.



- **Duffy, D. J.** and Burkhalter, B. (2020). When is a lab animal not a lab animal? - Rehabilitation of tumor-afflicted sea turtles, and their utilization as a natural model for human and wildlife cancers. *Lab Animal, Nature*. 49, 95–98 doi.org/10.1038/s41684-020-0504-6
- **Duffy, D. J.** and Martindale, M. Q. (2019). Perspectives on the expansion of human precision oncology and genomic approaches to sea turtle fibropapillomatosis. *Communications Biology*, 2 (1): 54. Invited comment paper.
- Whilde, J., Whitmore, L., Yang, C., Eastman, C., Thomas, R., Burkhalter, B., Martindale, M. Q. and **Duffy, D. J.** (2019). Behaviour of juvenile green turtles (*Chelonia mydas*) before and after fibropapillomatosis tumour removal. *Testudo*, 9 (1): 22-35.
- **Duffy, D. J.**, Schnitzler, C., Karpinski, L., Thomas, R., Whilde, J., Eastman, C., Yang, C., Krstic, A., Rollinson, D., Zirkelbach, B., Yetsko, K., Burkhalter, B. and Martindale, M. Q. (2018). Sea turtle fibropapilloma tumors share genomic drivers and therapeutic vulnerabilities with human cancers. *Communications Biology*, 1 (1): 63. Cover feature.
- Farrell, J., Thomas, R., Martindale, M. Q. and **Duffy, D. J.** (2018). Characterisation of fibropapillomatosis tumour growth profiles in green sea turtles (*Chelonia mydas*). *Testudo*, 8 (5): 12-29. Invited submission, and cover feature.
- **Duffy, D. J.**, Konietzny, A., Krstic, A., Mehta, J. P., Halasz, M. and Kolch, W. (2018). Identification of a MYCN and Wnt related VANGL2-ITLN1 fusion gene in neuroblastoma, by RNA sequencing. *Gene Reports*, 1 (C): 187-200.
- Whilde, J., Martindale, M. Q. and **Duffy, D. J.** (2017) Precision wildlife medicine: Applications of the human-centred precision medicine revolution to species conservation. *Global Change Biology*, 23 (5): 1792–1805. Cover feature.
- **Duffy, D. J.**, Krstic, A., Schwarzl, T., Halasz, M., Konietzny, A., Iljin, K., Higgins, D. G. and Kolch, W. (2017). Retinoic Acid and TGF $\beta$  signalling cooperate to overcome MYCN-induced retinoid resistance. *Genome Medicine*, 9 (15).
- Daly, C., Shine, L., Heffernan, T., Deeti, S., Reynolds, A., O'Connor, J. J., Dillon, E. T., **Duffy D. J.**, Kolch, W., Cagney, G. and Kennedy, B. N. (2017). A brain-derived neurotrophic factor mimetic is sufficient to restore cone photoreceptor visual function in an inherited blindness model. *Scientific Reports*. 7, 11320.
- **Duffy, D. J.** (2016). Problems, challenges and promises: Perspectives on precision medicine. *Briefings in Bioinformatics*, 17, 494-504.
- **Duffy, D. J.**, Krstic, A., Halasz, M., Schwarzl, T., Fey, D., Iljin, K., Whilde, J., Westermann, F., Higgins, D. G. and Kolch, W. (2016). Wnt signalling is a bi-directional vulnerability of cancer cells. *Oncotarget* 7 (37), 60310-60331. Selected as an Oncotarget priority research paper.
- Henrich, K.-O., Bender, S., Saadati, M., Dreidax, D., Gartlgruber, M., Shao, C., Herrmann, C., Wiesenfarth, M., Parzonka, M., Wehrmann, L., Fischer, M., **Duffy, D. J.**, Bell, E. et al. (2016). Integrative genome-scale analysis identifies epigenetic mechanisms of transcriptional deregulation in unfavorable neuroblastomas. *Cancer Research* 76 (18), 5523-5537.
- **Duffy, D. J.**, Krstic, A., Schwarzl, T., Halasz, M., Iljin, K., Fey, D., Haley, B., Killick, K., Mehta, J. P., Whilde, J., Westermann, F., Higgins, D. G. and Kolch, W. (2015). MYCN integrative omics enables network-based therapeutic target discovery and patient stratification in neuroblastoma. *Oncotarget* 6 (41), 43182-43201. Selected as an Oncotarget priority research paper.

- Tortolina, L., **Duffy, D. J.**, Maffei, M., Castagnino, N., Carmody, A., Kolch, W., Kholodenko, B., De Ambrosi, C., Barla, A., Nencioni, A. et al. (2015). Advances in dynamic modeling of colorectal cancer signaling network regions, a path toward targeted therapies. *Oncotarget* 6 (7), 5041-5058.
- Schwarzl, T., Krstic, A., Higgins, D. G., Kolch, W. and **Duffy, D. J.** (2015). Measuring transcription rate changes via time-course 4-thiouridine pulse-labelling improves transcriptional target identification. *Journal of Molecular Biology* 427, 3368-3374.
- **Duffy, D. J.**, Krstic, A., Schwarzl, T., Higgins, D. G. and Kolch, W. (2014). GSK3 inhibitors regulate MYCN mRNA levels and reduce neuroblastoma cell viability through multiple mechanisms, including p53 and Wnt signaling. *Molecular Cancer Therapeutics* 13, 454-467.
- Dreidax, D., Bannert, S., Henrich, K., Schröder, C., Bender, S., Oakes, C., Lindner, S., Schulte, J., **Duffy, D. J.**, Schwarzl, T. et al. (2014). p19-INK4d inhibits neuroblastoma cell growth, induces differentiation and is hypermethylated and downregulated in MYCN-amplified neuroblastomas. *Human Molecular Genetics* 23, 6826-6837.
- **Duffy, D. J.**, Millane, R. C. and Frank, U. (2012). A heat shock protein and Wnt signaling crosstalk during axial patterning and stem cell proliferation. *Developmental Biology* 362, 271-281. F1000 recommended.
- **Duffy, D. J.** (2012). Instructive reconstruction: A new role for apoptosis in pattern formation. *BioEssays* 34, 561-564. Editorially highlighted.
- **Duffy, D. J.** and Frank, U. (2011). Modulation of COUP-TF expression in a cnidarian by ectopic Wnt signalling and allorecognition. *PLoS ONE* 6, e19443.
- Millane, R. C., Kanska, J., **Duffy, D. J.**, Seoighe, C., Cunningham, S., Plickert, G. and Frank, U. (2011). Induced stem cell neoplasia in a cnidarian by ectopic expression of a POU domain transcription factor. *Development* 138, 2429-2439.
- **Duffy, D. J.** (2011). Modulation of Wnt signalling: a route to speciation? *Communicative & Integrative Biology* 4, 59-61. Cover feature.
- **Duffy, D. J.**, Plickert, G., Kuenzel, T., Tilmann, W. and Frank, U. (2010). Wnt signaling promotes oral but suppresses aboral structures in *Hydractinia* metamorphosis and regeneration. *Development* 137, 3057-3066.

### Selected Media Contributions

- May 2021      Invited Bioscience Talks podcast 'Environmental DNA and RNA May Be Key in Monitoring Pathogens such as SARS-CoV-2', related to the release of our BioScience eDNA paper. <https://bioscience-talks.aibs.org/episodes/environmental-dna-and-rna-may-be-key-in-monitoring-pathogens-such-as-sars-cov-2>
- May 2021      Invited blog post on Nature Ecology and Evolution. Farrell, J., Yetsko, K. and Duffy D.J. 2021. Tracking an oncogenic sea turtle virus with eDNA. <https://natureecoevocommunity.nature.com/posts/tracking-an-oncogenic-sea-turtle-virus-with-edna>
- April 2021      Farrell, J. A., Whitmore, L. and Duffy D. J. (2021). Environmental DNA – how a tool used to detect endangered wildlife ended up helping fight the COVID-19 pandemic. The Conversation. <https://theconversation.com/environmental-dna-how-a-tool-used-to-detect-endangered-wildlife-ended-up-helping-fight-the-covid-19-pandemic-158286>



- Mar. 2021 Duffy, D. J., Loesgen, S., Farrell, J. A., Kaweesa, Elizabeth, N., Dorothy M. 2021. Meet the Students: National Save The Sea Turtle Foundation Fibropapillomatosis Training and Research Initiative Scholarship Recipients Chosen at the University of Florida. Florida Environmental Outreach Magazine.
- Feb. 2021 Opening of our WRI rehabilitation hospital featured on RTE news, website and radio station. <https://www.rte.ie/news/ireland/2021/0205/1195235-ireland-wildlife-hospital/>
- Nov. 2020 Research featured in on First Coast News station, segment and article on our findings (including interview). Study: Plastic found in the smallest of baby sea turtles in Northeast Florida. <https://www.firstcoastnews.com/article/news/local/study-plastic-found-in-the-smallest-of-baby-sea-turtles-in-northeast-florida/77-553f41b6-6f19-42c6-91bf-9db031c16c1b>
- Nov. 2020 Duffy D. J. (2020). How many genes does it take to make a human? RTE Brainstorm. <https://www.rte.ie/brainstorm/2020/1111/1177444-how-many-genes-does-it-take-to-make-a-human/>
- Oct. 2020 Interviewed and papers featured in Communications Biology editorial: Open Access Week at Communications Biology, Montague-Cardoso, K. 2020. <https://cancercommunity.nature.com/posts/open-access-week-at-communications-biology>  
<https://naturecoevocommunity.nature.com/posts/open-access-week-at-communications-biology>
- Sept. 2020 Research featured on The Weather Channel <https://twitter.com/patrn/status/1301915377916694528>
- Sept. 2020 Research featured in on News 4 JAX station, segment and article. Sea turtle hatchlings found dead along Northeast Florida coast after eating plastic. <https://www.news4jax.com/weather/2020/09/01/sea-turtle-hatchlings-found-dead-along-northeast-florida-coast-after-eating-plastic/>
- Aug. 2020 Duffy D. J., and Eastman, C. (2020). Newly hatched Florida sea turtles are consuming dangerous quantities of floating plastic. The Conversation. <https://theconversation.com/newly-hatched-florida-sea-turtles-are-consuming-dangerous-quantities-of-floating-plastic-143785>  
Article re-printed by numerous news outlets , and featured on First Coast News and The Weather Channel stations: <https://frontiers.altmetric.com/details/88832208>
- Aug. 2020 Duffy D. J., Duffy, P., Whilde, J. and Higgs, E. (2020). Ireland's hidden problem with wildlife crime. RTE Brainstorm. <https://www.rte.ie/brainstorm/2020/0811/1158591-irelands-hidden-problem-with-wildlife-crime/>
- July 2020 Duffy D. J., and Whilde, J. (2020). How the rate of pandemics has grown due to human activities. RTE Brainstorm. <https://www.rte.ie/brainstorm/2020/0702/1150996-pandemics-coronavirus-animals-birds-humans/>  
RTE Brainstorm pandemic article re-printed by the Veterinary Ireland Journal . <http://www.veterinaryirelandjournal.com/focus/190-pandemics-the-origin-of-the-diseases>
- June 2020 Duffy, D. J. (2020). The University of Florida's Whitney Laboratory for Marine Bioscience and Sea Turtle Hospital: Advancing Sea Turtle Disease Research, Supported by the

National Save The Sea Turtle Foundation. Florida Environmental Outreach Magazine, Volume 12, Issue 2.

- Mar. 2020 What animals can teach humans about regrowing body parts. RTE Brainstorm. <https://www.rte.ie/brainstorm/2020/0225/1117560-animals-regrowing-body-parts>
- Feb. 2020 Invited to have research images featured in a cancer research exhibition at the Francis Crick Institute, UK (pending, possibly delayed due to the pandemic). [https://www.crick.ac.uk/news/2020-02-04\\_the-crick-announces-first-uk-exhibition-exploring-cancer-research](https://www.crick.ac.uk/news/2020-02-04_the-crick-announces-first-uk-exhibition-exploring-cancer-research)
- Nov. 2019 Interviewed for an article on our sea turtle research for UF's Explore Magazine, Fall 2019 edition p22-23. <http://explore.research.ufl.edu/sea-turtle-er.html>
- Jan. 2019 Authored an article on canine venereal disease (a transmissible cancer) for RTE Brainstorm. 'Who let the dogs out? Meet Candie, the oldest dog on the planet.' <https://www.rte.ie/eile/brainstorm/2019/0115/1023297-who-let-the-dogs-out-meet-candie-the-oldest-dog-on-the-planet/>
- Nov. 2018 Authored an article on FP research and pathogen-induced cancers for RTE Brainstorm. 'Meet the real teenage mutant sea turtles.' <https://www.rte.ie/eile/brainstorm/2018/1111/1010223-meet-the-real-teenage-mutant-sea-turtles/>
- Oct. 2018 Sea turtle research featured on Bustling Abroad blog. <https://www.bustlingabroad.com/turtle-hospital-saving-sea-turtles-florida/>
- July 2018 Sea turtle research featured on UF News 'Spotlight' page. [https://news.hr.ufl.edu/spotlight/the-whitney-labs-sea-turtle-hospital-helping-some-of-floridas-endangered-residents-heal-and-head-back-home/?utm\\_source=July+2018+UF+at+Work&utm\\_campaign=6cb59c15a9-EMAIL\\_CAMPAIGN\\_2018\\_07\\_05\\_08\\_54&utm\\_medium=email&utm\\_term=](https://news.hr.ufl.edu/spotlight/the-whitney-labs-sea-turtle-hospital-helping-some-of-floridas-endangered-residents-heal-and-head-back-home/?utm_source=July+2018+UF+at+Work&utm_campaign=6cb59c15a9-EMAIL_CAMPAIGN_2018_07_05_08_54&utm_medium=email&utm_term=)
- July 2018 WTSP 10 News Tampa (CBS-affiliated television station). News segment focusing on our FP precision medicine research. <https://www.wtsp.com/video/news/marine-biologists-are-using-human-skin-cancer-treatments-to-help-sea-turtles/67-8194602>

Save our Seas Foundation News. Can turtle tumours be treated? The answer is closer to home than we think. <https://saveourseas.com/can-turtle-tumours-be-treated-the-answer-is-closer-to-home-than-we-think/>

Research featured by an article on The Conversation Could human cancer treatments be the key to saving sea turtles from a disfiguring tumor disease? (written by Jessica Farrell, a PhD co-supervisee). <https://theconversation.com/could-human-cancer-treatments-be-the-key-to-saving-sea-turtles-from-a-disfiguring-tumor-disease-98140>

This article was subsequently highlighted by

*Smithsonian* [https://www.smithsonianmag.com/science-nature/sharing-human-cancer-treatments-turtles-180969600/?utm\\_source=smithsoniandaily&utm\\_medium=email&utm\\_campaign=07/11/2018%20Daily%20Newsletter&spMailingID=35105399&spUserID=NzQwNDU2OTM0NzcS1&spJobID=1321199653&spReportId=MTMyMTE5OTY1MwS2](https://www.smithsonianmag.com/science-nature/sharing-human-cancer-treatments-turtles-180969600/?utm_source=smithsoniandaily&utm_medium=email&utm_campaign=07/11/2018%20Daily%20Newsletter&spMailingID=35105399&spUserID=NzQwNDU2OTM0NzcS1&spJobID=1321199653&spReportId=MTMyMTE5OTY1MwS2)

*Phys.org* <https://phys.org/news/2018-07-human-cancer-treatments-key-sea.html>

*Florida Environmental Outreach Magazine, Volume 10, Issue 3, p10-11.*

- June 2018 St. Augustine Record. Research highlighted and public talk advertised  
<http://www.staugustine.com/entertainmentlife/20180612/saving-our-sea-turtles>
- June 2018 Media coverage of our Comms. Bio. Paper:  
  
Science news. Interview and fibropapillomatosis genomics paper featured.  
<http://www.sciencemag.org/news/2018/06/cure-common-turtle-cancer-takes-lesson-human-cancers>  
  
Nature Asia. <http://www.natureasia.com/en/research/highlight/12543>  
  
Inverse. <https://www.inverse.com/article/45681-sea-turtle-cancer-fibropapilloma>  
  
Cosmos. <https://cosmosmagazine.com/biology/common-human-med-offers-hope-to-cancer-stricken-turtles>  
  
ALN. <https://www.alnmag.com/news/2018/06/one-health-human-drug-successfully-treats-cancer-sea-turtles>  
  
RNA-seq blog. <https://www.rna-seqblog.com/rna-seq-reveals-that-a-common-human-med-offers-hope-to-cancer-stricken-turtles/>  
  
Discover Magazine blog. Fibropapillomatosis genomics paper featured.  
[http://blogs.discovermagazine.com/d-brief/2018/06/07/human-cancer-treatment-sea-turtles/?utm\\_source=feedburner&utm\\_medium=feed&utm\\_campaign=Feed%3A%20DiscoverTopStories%20%28Discover%20Top%20Stories%29#.WxmzSfZFW2w](http://blogs.discovermagazine.com/d-brief/2018/06/07/human-cancer-treatment-sea-turtles/?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A%20DiscoverTopStories%20%28Discover%20Top%20Stories%29#.WxmzSfZFW2w)  
  
N+1 (Russian news site). <https://nplus1.ru/news/2018/06/08/sea-turtles-tumors>  
  
University of Florida News. Featured in and contributed to article on FP paper.  
<http://news.ufl.edu/articles/2018/06/human-cancer-therapies-successfully-treat-tumors-in-sea-turtles-.php>  
  
Bangor University News. Featured in and contributed to article on FP paper.  
<https://www.bangor.ac.uk/news/latest/human-cancer-therapies-successfully-treat-tumor-ridden-sea-turtles-37098>
- Jan. 2018 The Guardian. Interviewed (Nov. 2017) for a feature on marine biology.  
<https://www.theguardian.com/education/2018/jan/12/blue-planet-effect-why-marine-biology-courses-booming>
- Oct. 2017 Contributed to Inspired by The Blue Planet promotional video for Bangor University.  
<https://www.youtube.com/watch?v=hOxNpneDaUk>
- Oct. 2017 Pelican Post. Contributed to an article on fibropapilloma tumors and the sea turtle hospital.  
<https://static1.squarespace.com/static/5251c609e4b05f3f0154f487/t/59d15e9f0abd041b024d82ea/1506893496704/Fall+2017+09+04.pdf>
- July 2017 NBC's First Coast News. News segment featured our fibropapillomatosis research.  
<http://www.firstcoastnews.com/news/health/researching-turtle-tumors-in-flagler-could-help-human-medicine/455873724>

- July 2017 St. Augustine Record. Research featured in an article on fibropapilloma tumors of sea turtles. [www.staugustine.com/living/sunday-life/2017-07-09/specialty-license-plate-provides-funds-sea-turtle-rehabilitation](http://www.staugustine.com/living/sunday-life/2017-07-09/specialty-license-plate-provides-funds-sea-turtle-rehabilitation)
- Dec. 2016 Duffy, D. J. (2017). Turtles, Tumors and Treatments: How we can assist Florida's green turtles in overcoming the spreading oncological threat of Fibropapilloma disease. Florida Environmental Outreach Magazine, Spring Issue, p16-19.
- Nov. 2016 Anthropocene Magazine. Research featured in A health care revolution... for wildlife? <http://www.anthropocenemagazine.org/2016/11/precision-medicine-for-wildlife/>
- Sept. 2016 Contributed to a public awareness video by the Sea Turtle Conservancy focusing on my genomic approach to fibropapilloma tumor research. Received over 36,000 views on Facebook in first month. <https://vimeo.com/188777268>  
<https://www.facebook.com/conserveturtles/videos/1486336228061785/>
- Aug. 2016 St. Augustine Record. Research and public lecture featured in an article on fibropapilloma tumors of sea turtles. [www.staugustine.com/living/community/2016-08-16/cancer-sea-turtles-topic-lecture](http://www.staugustine.com/living/community/2016-08-16/cancer-sea-turtles-topic-lecture)
- June 2016 University of Florida News. Contributed to an article on fibropapilloma tumors of sea turtles. [www.news.ufl.edu/articles/2016/06/a-second-chance-for-cisco.php](http://www.news.ufl.edu/articles/2016/06/a-second-chance-for-cisco.php)