**Alexandra G. DiFeliceantonio, PhD**

Assistant Professor,

Fralin Biomedical Research Institute at VTC and

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Education and Past Positions

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| --- | --- |
| Associate Research ScientistYale University School of Medicine, PsychiatryModern Diet and Physiology Research Center at Yale, Dana M Small | 2018-2019 |
| Post-Doctoral FellowVisiting Post-Doctoral FellowMax Planck Institute for Metabolism ResearchTranslational Neurocircuitry Group, Marc Tittgemeyer | 2013-20152015-2018 |
| Post-Doctoral FellowIcahn School of Medicine at Mount SinaiThe Kenny Laboratory, Paul Kenny | 2017- 2019 |
| Post-Doctoral FellowJohn B. Pierce Laboratory at Yale UniversityDepartment of Psychiatry, Yale School of MedicineNeuropsychology of Flavor and Feeding, Dana M Small | 2013-2018 |
| Graduate StudentUniversity of Michigan Affective Neuroscience Laboratory, Kent Berridge | 2008-2013 |

Publications

1. Howes EM, Parker MK, Misyak SA, **DiFeliceantonio AG**, Davy BM, Brown LEC, Hedrick VE. The Impact of Weight Bias and Stigma on the 24 h Dietary Recall Process in Adults with Overweight and Obesity: A Pilot Study. Nutrients. 2024; 16(2):191. https://doi.org/10.3390/nu16020191
2. Rego MLM, Leslie E, Capra BT, Helder M, Yu W, Katz B, Davy KP, Hedrick VE, Davy BM, **DiFeliceantonio AG**. The influence of ultra-processed food consumption on reward processing and energy intake: Background, design, and methods of a controlled feeding trial in adolescents and young adults. Contemp Clin Trials. 2023 Dec;135:107381. doi: 10.1016/j.cct.2023.107381. Epub 2023 Nov 5. PMID: 37935307.
3. Quddos F, Hubshman Z, Tegge A, Sane D, Marti E, Kablinger AS, Gatchalian KM, Kelly AL\*, **DiFeliceantonio AG**, Bickel WK. Semaglutide and Tirzepatide reduce alcohol consumption in individuals with obesity. Sci Rep. 2023 Nov 28;13(1):20998. doi: 10.1038/s41598-023-48267-2. PMID: 38017205; PMCID: PMC10684505.
4. Gearhardt AN, Bueno NB, **DiFeliceantonio AG**, Roberto CA, Jiménez-Murcia S, Fernandez-Aranda F. Social, clinical, and policy implications of ultra-processed food addiction. BMJ. 2023 Oct 9;383:e075354. doi: 10.1136/bmj-2023-075354. PMID: 37813420.
5. Baugh ME, **DiFeliceantonio AG**. Obesity impairs brain responses to nutrients. Nat Metab. 2023 Jun;5(6):920-921. doi: 10.1038/s42255-023-00822-x. PMID: 37308723.
6. Edwin Thanarajah S, **DiFeliceantonio AG**, Albus K, Kuzmanovic B, Rigoux L, Iglesias S, Hanßen R, Schlamann M, Cornely OA, Brüning JC, Tittgemeyer M, Small DM. Habitual daily intake of a sweet and fatty snack modulates reward processing in humans. Cell Metab. 2023 Apr 4;35(4):571-584.e6. doi: 10.1016/j.cmet.2023.02.015. Epub 2023 Mar 22. PMID: 36958330.
7. Gearhardt AN, **DiFeliceantonio AG**. The risks of misclassifying addictive food substances as non-addictive. Addiction. 2023 Apr;118(4):605-606. doi: 10.1111/add.16140. Epub 2023 Feb 7. PMID: 36750376.
8. Gearhardt AN, **DiFeliceantonio AG**. Highly processed foods can be considered addictive substances based on established scientific criteria. Addiction. 2023 Apr;118(4):589-598. doi: 10.1111/add.16065. Epub 2022 Nov 9. PMID: 36349900.
9. Caligiuri SPB, Howe WM, Wills L, Smith ACW, Lei Y, Bali P, Heyer MP, Moen JK, Ables JL, Elayouby KS, Williams M, Fillinger C, Oketokoun Z, Lehmann VE, **DiFeliceantonio AG**, Johnson PM, Beaumont K, Sebra RP, Ibanez-Tallon I, Kenny PJ. Hedgehog-interacting protein acts in the habenula to regulate nicotine intake. Proc Natl Acad Sci U S A. 2022 Nov 15;119(46):e2209870119. doi: 10.1073/pnas.2209870119. Epub 2022 Nov 8. PMID: 36346845; PMCID: PMC9674224.
10. Baugh, M.E., Hutelin, Z., & **DiFeliceantonio, A. G.** (2022). Neural correlates of ‘Liking’ and ‘Wanting’ in short term eating behaviours and long-term energy balance. Current Opinion in Behavioral Sciences, 48, 101227. doi: 10.1016/j.cobeha.2022.101227
11. Kelly AL, Baugh ME, Oster ME, **DiFeliceantonio AG**. The impact of caloric availability on eating behavior and ultra-processed food reward. Appetite. 2022 Nov 1;178:106274. doi: 10.1016/j.appet.2022.106274. Epub 2022 Aug 10. PMID: 35963586; PMCID: PMC9749763.
12. Smith ACW, Jonkman S, **DiFeliceantonio AG**, O'Connor RM, Ghoshal S, Romano MF, Everitt BJ, Kenny PJ. Opposing roles for striatonigral and striatopallidal neurons in dorsolateral striatum in consolidating new instrumental actions. Nature Communications. (2021) Aug 25;12(1):5121. doi: 10.1038/s41467-021-25460-3. PMID: 34433818.
13. Perszyk EE, Hutelin Z, Trinh J, Kanyamibwa A, Fromm S, Davis XS, Wall KM, Flack KD, **DiFeliceantonio AG**, Small DM. Fat and Carbohydrate Interact to Potentiate Food Reward in Healthy Weight but Not in Overweight or Obesity. Nutrients. 2021 Apr 6;13(4):1203. doi: 10.3390/nu13041203. PMID: 33917347; PMCID: PMC8067354.
14. Fromm S, Perszyk EE, Kanyamibwa A, Wall KM, Hutelin Z, Trinh J, Davis XS, Green BG, Flack KD, **DiFeliceantonio A**, Small DM. Development of MacroPics: A novel food picture set to dissociate the effects of carbohydrate and fat on eating behaviors. Appetite. 2021 Apr 1;159:105051. doi: 10.1016/j.appet.2020.105051. Epub 2020 Nov 23. PMID: 33242580.
15. Wall KM, Farruggia MC, Perszyk EE, Kanyamibwa A, Fromm S, Davis XS, Dalenberg JR, **DiFeliceantonio AG**, Small DM. No evidence for an association between obesity and milkshake liking. Int J Obes (Lond). 2020 Aug;44(8):1668-1677. doi: 10.1038/s41366-020-0583-x. Epub 2020 May 12. PMID: 32398755; PMCID: PMC7387147.
16. Gritton HJ, Howe WM, Romano MF, DiFeliceantonio AG, Kramer MA, Saligrama V, Bucklin ME, Zemel D, Han X. Unique contributions of parvalbumin and cholinergic interneurons in organizing striatal networks during movement. Nature Neuroscience. 2019 Apr;22(4):586-597. doi: 10.1038/s41593-019-0341-3. Epub 2019 Feb 25. PMID: 30804530; PMCID: PMC6744276.
17. Small DM, **DiFeliceantonio AG**. Processed foods and food reward. Science. 2019 Jan 25;363(6425):346-347. doi: 10.1126/science.aav0556. PMID: 30679360.
18. **DiFeliceantonio AG**, Small DM. Dopamine and diet-induced obesity. Nat Neurosci. 2019 Jan;22(1):1-2. doi: 10.1038/s41593-018-0304-0. PMID: 30559474.
19. Thanarajah SE, Backes H, **DiFeliceantonio AG,** Albus K, Cremer AL, Hanssen R, Lippert RN, Cornely OA, Small DM, Brüning JC, Tittgemeyer M. Food Intake Recruits Orosensory and Post-ingestive Dopaminergic Circuits to Affect Eating Desire in Humans. Cell Metab. 2019 Mar 5;29(3):695-706.e4. doi: 10.1016/j.cmet.2018.12.006. Epub 2018 Dec 27. PMID: 30595479.
20. **DiFeliceantonio AG**, Kenny PJ. Melanocortin 4 receptors switch reward to aversion. J Clin Invest. 2018 Jul 2;128(7):2757-2759. doi: 10.1172/JCI121653. Epub 2018 Jun 18. PMID: 29911995; PMCID: PMC6025989.
21. **DiFeliceantonio AG**, Coppin G, Rigoux L, Edwin Thanarajah S, Dagher A, Tittgemeyer M, Small DM. Supra-Additive Effects of Combining Fat and Carbohydrate on Food Reward. Cell Metab. 2018 Jul 3;28(1):33-44.e3. doi: 10.1016/j.cmet.2018.05.018. Epub 2018 Jun 14. PMID: 29909968.
22. **DiFeliceantonio AG**, Berridge KC. Dorsolateral neostriatum contribution to incentive salience: opioid or dopamine stimulation makes one reward cue more motivationally attractive than another. Eur J Neurosci. 2016 May;43(9):1203-18. doi: 10.1111/ejn.13220. Epub 2016 Apr 3. PMID: 26924040; PMCID: PMC4846486.
23. Richard JM, Castro DC, **DiFeliceantonio AG**, Robinson MJ, Berridge KC. Mapping brain circuits of reward and motivation: in the footsteps of Ann Kelley. Neurosci Biobehav Rev. 2013 Nov;37(9 Pt A):1919-31. doi: 10.1016/j.neubiorev.2012.12.008. Epub 2012 Dec 19. PMID: 23261404; PMCID: PMC3706488.
24. **DiFeliceantonio AG**, Mabrouk OS, Kennedy RT, Berridge KC. Enkephalin surges in dorsal neostriatum as a signal to eat. Curr Biol. 2012 Oct 23;22(20):1918-24. doi: 10.1016/j.cub.2012.08.014. Epub 2012 Sep 20. PMID: 23000149; PMCID: PMC3482294.
25. **DiFeliceantonio AG**, Berridge KC. Which cue to 'want'? Opioid stimulation of central amygdala makes goal-trackers show stronger goal-tracking, just as sign-trackers show stronger sign-tracking. Behav Brain Res. 2012 May 1;230(2):399-408. doi: 10.1016/j.bbr.2012.02.032. Epub 2012 Feb 25. PMID: 22391118; PMCID: PMC3322261.
26. McGinty VB, Hayden BY, Heilbronner SR, Dumont EC, Graves SM, Mirrione MM, du Hoffmann J, Sartor GC, España RA, Millan EZ, **Difeliceantonio AG**, Marchant NJ, Napier TC, Root DH, Borgland SL, Treadway MT, Floresco SB, McGinty JF, Haber S. Emerging, reemerging, and forgotten brain areas of the reward circuit: Notes from the 2010 Motivational Neural Networks conference. Behav Brain Res. 2011 Nov 20;225(1):348-57. doi: 10.1016/j.bbr.2011.07.036. Epub 2011 Jul 26. PMID: 21816177; PMCID: PMC3445023.
27. Schramm-Sapyta NL, **DiFeliceantonio AG**, Foscue E, Glowacz S, Haseeb N, Wang N, Zhou C, Kuhn CM. Aversive effects of ethanol in adolescent versus adult rats: potential causes and implication for future drinking. Alcohol Clin Exp Res. 2010 Dec;34(12):2061-9. doi: 10.1111/j.1530-0277.2010.01302.x. Epub 2010 Sep 22. PMID: 20860614; PMCID: PMC2988872.
28. Berridge KC, Ho CY, Richard JM, **DiFeliceantonio AG**. The tempted brain eats: pleasure and desire circuits in obesity and eating disorders. Brain Res. 2010 Sep 2;1350:43-64. doi: 10.1016/j.brainres.2010.04.003. Epub 2010 Apr 11. PMID: 20388498; PMCID: PMC2913163.

Oral Presentations

**DiFeliceantonio, AG\*,** (2023). Getting the Picture: How Do Our Brains React to Foods? Obesity Week. Dallas, Texas.

**DiFeliceantonio, AG,** (2022). Outside-in: peripheral modifiers of food reward in Understanding the (Dys)function of Motivational Circuits and Maladaptive Feeding. Society for Neuroscience. San Diego California

**DiFeliceantonio, AG\*** (2021). Cue mediated feeding – Human Neuroimaging Studies. Obesity Week. Virtual.

**DiFeliceantonio, AG\***, Baugh, ME, Baskette, K, Kelly, A.**(**2021). The Role of Speed of Nutrient Availability in Food Reward. Society for the Study of Ingestive Behavior. Virtual.

**DiFeliceantonio, AG\*** (2021). Why do we eat what we eat? Overlap between food and drug reward in the brain. International Society for Neurogastronomy. Virtual.

**DiFeliceantonio, AG\*** (2021). Why do we eat what we eat? Central Virginia Society for Neuroscience Meeting. Virtual.

**DiFeliceantonio, AG,** Coppin, G, Rigoux, L, Edwin Thanarajah, S, Dahger, A, Bruening, JC, Tittgemeyer, M, Small DM. (2018) When a calorie is not a calorie: fat and carbohydrate combinations potentiate measures of reinforcement independently of caloric load. Society for Neuroscience Annual Meeting, San Diego, CA

**DiFeliceantonio, AG,** Edwin Thanarajah, S, Hess, M, Albus, K, Small DM, Tittgemeyer, M (2018). The effect of a 12-week high-fat diet on brain and behavior in healthy humans. Society for Ingestive Behavior Annual Meeting, Fort Meyers, Florida.

**DiFeliceantonio, AG,** Coppin, G, Rigoux, L, Edwin Thanarajah, S, Dahger, A, Bruening, JC, Tittgemeyer, M, Small DM. (2016) When a calorie is not a calorie: fat and carbohydrate combinations potentiate measures of reinforcement independently of caloric load. Society for Ingestive Behavior Annual Meeting, Porto, Portugal.

**DiFeliceantonio, AG** and Berridge KC (2013) Opioid codes and causes of intense motivation in the dorsomedial neostriatum. Eastern Psychological Association Annual Meeting, NYC.

**DiFeliceantonio, AG** and Berridge, KC (2011) The dorsolateral neostriatum as a generator of incentive salience. European Behavioral Pharmacology Society meeting, Amsterdam.

\*Invited or Plenary Presentation

Awards and Honors

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| --- | --- |
| Mentor of the Month, April, Virginia Tech Graduate School | 2022 |
| Timothy J. Bartness Award, Society for the Study of Ingestive Behavior | 2021 |
| Travel Award awarded by NIDDK Neuroimaging and Modulation in Obesity and Diabetes 10th Anniversary Meeting | 2019 |
| Promising Young Investigator Travel Award awarded by the Office of Postdoctoral Affairs at Mount Sinai | 2018 |
| Recipient of predoctoral training grant T32 DA007267 awarded by University of Michigan Substance Abuse Research Center. | 2011-2013 |
| Travel award recipient for the European Behavioral Pharmacology Society meeting | 2011 |
| Recipient of travel award for Motivational Neuronal Networks Conference | 2010 |
| NIDA predoctoral training grant 5T32DA007281-14 | 2008-2009 |
| Recipient of the Rackham Graduate School Travel Grant | 2009-2011 |

Recent Funding

Title: Ultra-processed food reward: neural and metabolic factors

Role: PI

Agency: NIH NIDDK R01 DK132389

Period: Feb 20, 2023- Feb 20, 2028

Title: Influence of ultra-processed foods on reward processing and energy intake

Role: MPI

Agency: NIH NICHD R21 HD109722

Period: July 1, 2022-June 30 2024

Title: A gut-brain interaction controlling reward learning

Role: Co-I

Agency NIH NIDDK R01 DK133823

August 2022- May 2027

Title: The role of altered nutrient partitioning in food reward

Role: PI

Agency: iTHRIV Pilot Translational and Clinical Studies Program (iTHRIV NIH UL1TR003015)

Period: Feb 1, 2022-Jan 31, 2023

Title: Neural and Metabolic Correlates of Carbohydrate Reward

Role: PI Scholar

Agency: iTHRIV Scholars Program

Period: July 1, 2020-June 30-2022

Peer Review

NeuroImage, Chemical Senses, European Journal of Neuroscience, Diabetologia, Cognition and Emotion, Appetite, Scientific Reports, International Journal of Obesity, Obesity, Journal of Neuroscience, Proceedings of the National Academy of Sciences, Nutrients, Communications Biology, Nature Metabolism, PLOS Biology

Ad hoc Member, June 2023, Biobehavioral Regulation Learning and Ethology (BRLE), Center for Scientific Review

Example Media Appearances and Consulting

* Scientific American:
	+ <http://www.scientificamerican.com/article/simply-irresistible-overeating/>
	+ <https://www.scientificamerican.com/article/food-can-be-literally-addictive-new-evidence-suggests/>
	+ <https://www.scientificamerican.com/podcast/episode/fat-carb-combo-is-a-potent-one-two-punch/>
* NPR:
	+ <https://www.npr.org/2023/08/28/1196283092/diabetes-drug-ozempic-and-weight-loss-drug-wegovy-seem-to-curb-other-cravings>
	+ <https://www.npr.org/sections/health-shots/2023/08/28/1194526119/ozempic-wegovy-drinking-alcohol-cravings-semaglutide>
* National Geographic:
	+ https://www.nationalgeographic.com/magazine/article/how-sugar-and-fat-affect-your-brain
* Consulted as addiction neuroimaging expert for 2021 film “[Crisis](https://www.imdb.com/title/tt9731682/)”