

New video game enlists players to help advance scientific research

April 8 2020, by Frederique Mazerolle



Credit: McGill University

McGill researchers are turning to video games to harness the power of citizen scientists in order to map the gut microbiome.

Thanks to a collaboration with Jérôme Waldispühl, Associate Professor in McGill's School of Computer Science, [video game](#) companies Gearbox Software and 2K launched Borderlands Science today, an

interactive game—within the critically acclaimed Borderlands 3—that invites players to map the [human gut microbiome](#) to advance vital medical studies while earning in-game rewards.

"It was a simple choice to join Gearbox and its partners in making Borderlands Science a reality," said Waldispühl. "Working to help align the [gaming community](#) with the biomedical field allows these two passionate groups to work together toward a result that we might not realize without the collaborative effort."

McGill University, Massively Multiplayer Online Science (MMOS) and the Microsetta Initiative at UC San Diego's School of Medicine have all collaborated in the creation of Borderlands Science.

In addition, Emmy-nominated Big Bang Theory star, neuroscientist, and researcher, Mayim Bialik, lent her voice to the project, [helping guide players on their journey](#).

"We see Borderlands Science as an opportunity to use the enormous popularity of Borderlands 3 to advance social good," adds Gearbox co-founder Randy Pitchford. "Borderlands Science is the vanguard of a new nexus between entertainment and health: an innovative new game-within-the-game (with scores, progression and rewards), where your playtime actually generates tangible data that will be applied toward improving research, helping cure disease, and contributing to the broader medical community."

Helping gut research

Trillions of microbes inhabit the human gut—some of which are associated with [inflammatory bowel disease](#), diabetes, autism, Parkinson's, Alzheimer's, obesity and allergies—which makes identifying all of them nearly impossible. Being able to characterize

these microbial populations would help scientists better understand what role they play in human health.

This is where Borderlands Science comes into play. The project will leverage the skills of the video game community and apply them to mapping the human gut microbiome, saving medical researchers hundreds of thousands of hours it would take to train computers to do the same.

Borderlands Science encodes the DNA of each microbe as a string of bricks of four different shapes and colours. By connecting these blocks to each other, players will be helping scientists estimate the similarity between each microbe. The more puzzles players solve, the more they help decode the human [gut microbiome](#), all while earning rewards that can be used in Borderlands 3.

"We are always looking for new partners in the field of gaming, and this is a perfect fit for us," said MMOS CEO and co-founder Attila Szantner. "We created MMOS to connect scientific research and video games as a seamless gaming experience and that is exactly what this has become. I believe that Borderlands 3 players advancing microbiome research will change how we think about videogames."

To learn more about the Borderlands Science project, [visit Borderlands Science online](#) or www.dnapuzzles.org. For more information regarding contributors, click [here](#).

Provided by McGill University

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