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## A discovery platform to identify novel beneficial bacteria

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The use of beneficial bacteria known as 'probiotics' to promote health is widely practiced. However, experimental evidence corroborating the efficacy of many bacteria promoted with such claims remains limited. We directly address this gap by establishing a discovery platform to identify novel beneficial bacteria that dampen intestinal inflammation and limit tissue damage. We employed the *Drosophila* animal model to assess the capacity candidate beneficial bacteria to defend the fly gut from induced oxidative damage. From this screen, we identified a number of novel bacteria that elicited potent cytoprotective activity in the gut. In addition, using the murine model, we also demonstrate that the same strains confers powerful anti-inflammatory activity in a gut colitis model, and cytoprotective influences against radiological damage. Importantly, the beneficial activities of these strains in the murine intestine were substantially stronger in comparison to other currently marketed beneficial bacteria. In summary, we demonstrate that capacity of beneficial bacteria to elicit potent anti-inflammatory and cytoprotective properties in the gut, and propose that newly discovered probiotic strains of bacteria may be used as a therapeutic interventions to promote intestinal health.

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