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Communication of quorum sensing peptides with breast cancer cells.

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The role of the microbiome on cancer is being increasingly recognized [1]. However, the underlying factors of this communication remain elusive. Following our initial findings that certain quorum sensing peptides selectively interact with colon cancer cells [2,3], the interaction of quorum sensing peptides with MCF-7/AZ (breast adenocarcinoma) cells was investigated. By using microscopy, transcriptome profiling, Chick Chorioallantoic Membrane (CAM) analyses, cytokine and protein profiling, some quorum sensing peptides were found to selectively promote invasion and angiogenesis of these cancer cells *in vitro* [4]. Awaiting further *in vivo* studies, our *in vitro* results can thus possibly explain, at least partly, the influence the microbiome may have on breast cancer outcome.

References:

[1] Schwabe RF, *et al.* (2013) The microbiome and cancer. Nature Reviews Cancer 13: 800-812. [2] Wynendaele E, *et al.* (2013) Quorumpeps database: chemical space, microbial origin and functionality of the quorum sensing peptides. Nucleic Acids Research 41: D655-D659. [3] Wynendaele E, *et al.* (2014) Crosstalk between the microbiome and cancer cells by quorum sensing peptides. Peptides. *Manuscript accepted*. [4] De Spiegeleer B, et al. (2014) The quorum sensing peptides PhrG, CSP and EDF promote angiogenesis and invasion of breast cancer cells *in vitro*. *Manuscript submitted*.