

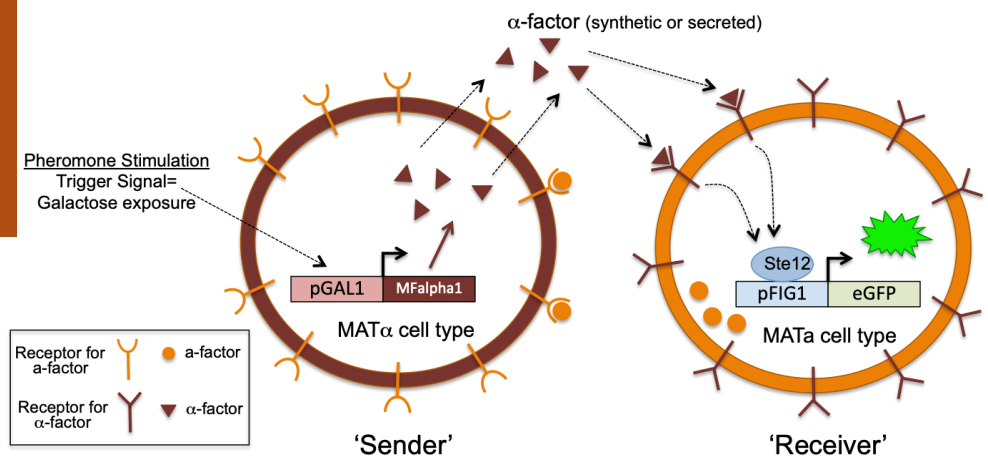
NEWSLETTER

Phero-MolCom Project

DEVELOPMENT OF A
NEW TESTBED FOR
VALIDATING
MOLECULAR
COMMUNICATIONS,
UNRAVEL
FUNDAMENTAL
PROPERTIES AND
EXPLORE POTENTIAL
APPLICATIONS

A YEAST PHEROMONE TESTBED FOR MOLECULAR COMMUNICATIONS

Electrical Engineers at Frederick Research Center collaborate with Biologists at the University of Cyprus and International Experts to **develop the first testbed in Europe for Molecular Communications (MC) which employs a yeast pheromone based inter-species communication system, enabled by controlled cell to cell communication.** **Molecular Communications** is expected to be part of 6G systems with standardization efforts leading to the IEEE P1906.1 standard sponsored by the IEEE Communications Society. The testbed has been established as a basis to develop **Yeast Biosensors**, envisioned as an enabling technology for the Internet of NanoBioThings for early disease detection.



Schematic of the yeast pheromone sender-receiver communication system.

PROJECT OUTCOMES

- A novel testbed for molecular communications has been established and demonstrated to be functional (https://drive.google.com/file/d/1eTJVm736M9YKEiqtC_drza9RUU9E5XWr/view).
- An end-to-end channel model of the communication system has been developed and validated.
- The results have been published in the flagship Journal of the MC field IEEE Transactions on Molecular, Biological, and Multi-Scale Communications (<https://ieeexplore.ieee.org/document/10429943>).