BCRATOS

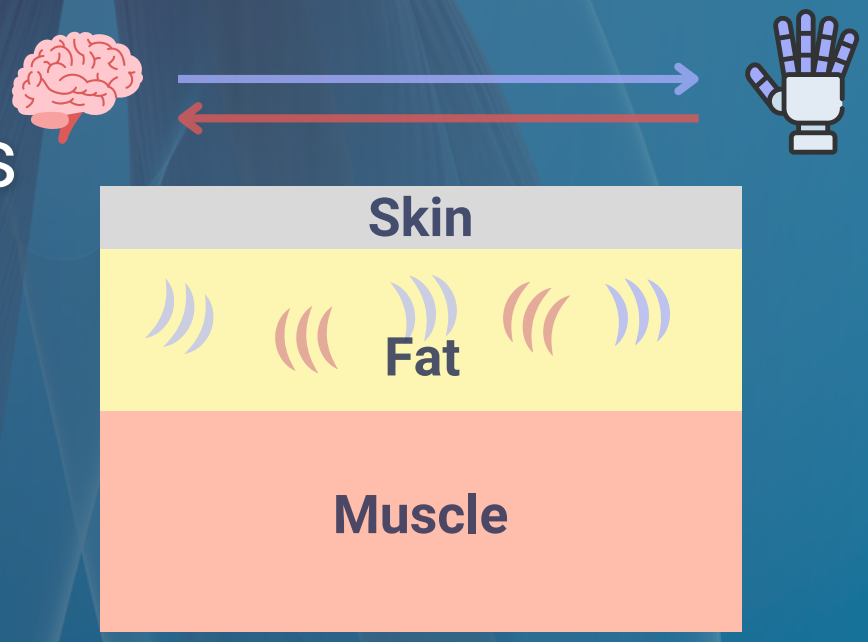
Fat-Intra Body Communication

WP3

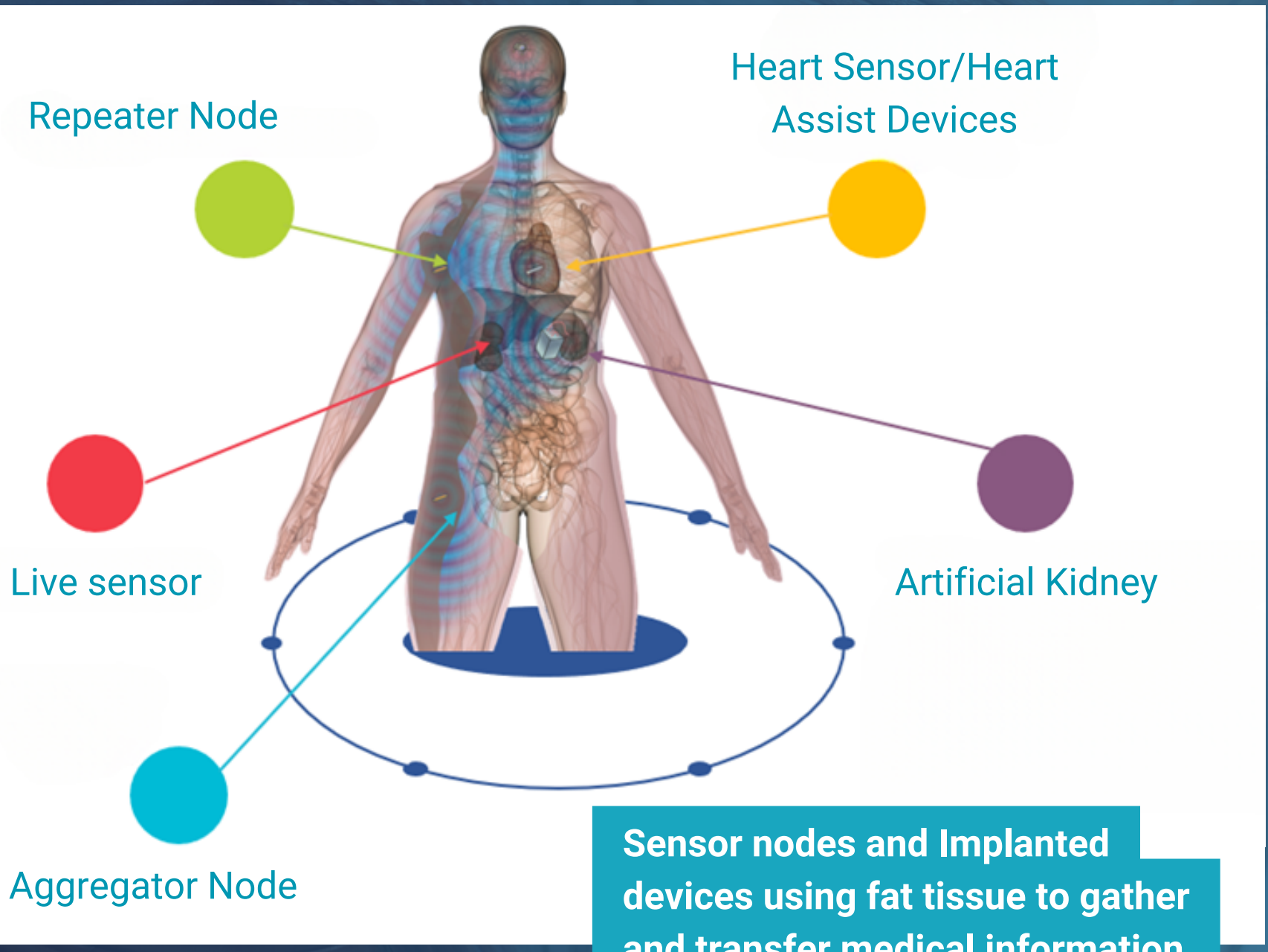
Fat-IBC? What's that?

The human body is comprised of various tissues, organs, and bone structures. After ample modelling and empirical study, it was demonstrated that **fat tissue is the most suitable transmission medium for microwave signals** within the human body, offering lower signal loss.

Sandwiched between skin and muscle, the sub-dermal fat layer forms a structure akin to a parallel plate waveguide. The stark contrast in dielectric properties between skin, fat, and muscle confines the microwave signal within the fat layer.



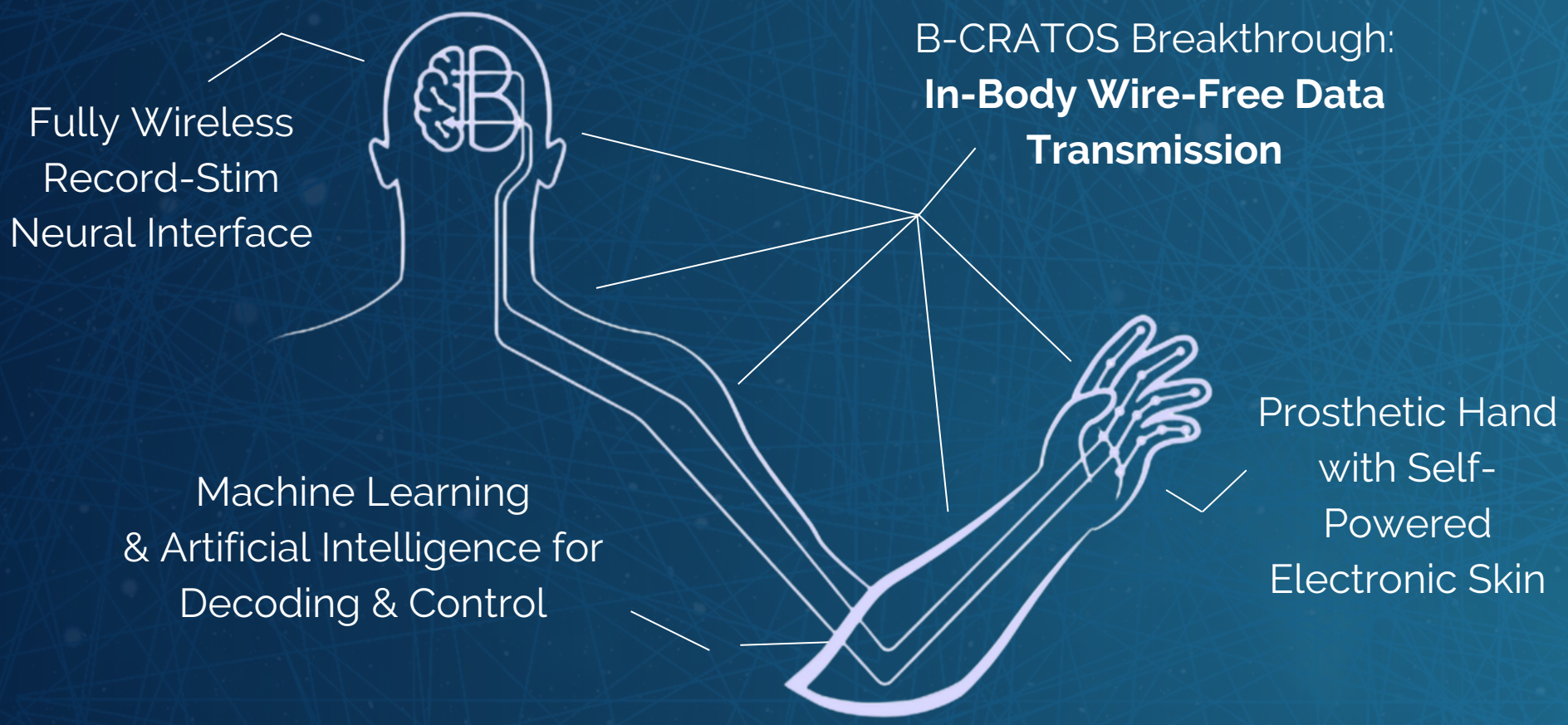
Microwave communication through fat tissue is a viable technique for **inter-implant communication**. Developing a reliable **wireless fat-channel-based intrabody area network** will enable the simultaneous collection of information from multiple implanted devices.



Sensor nodes and Implanted devices using fat tissue to gather and transfer medical information

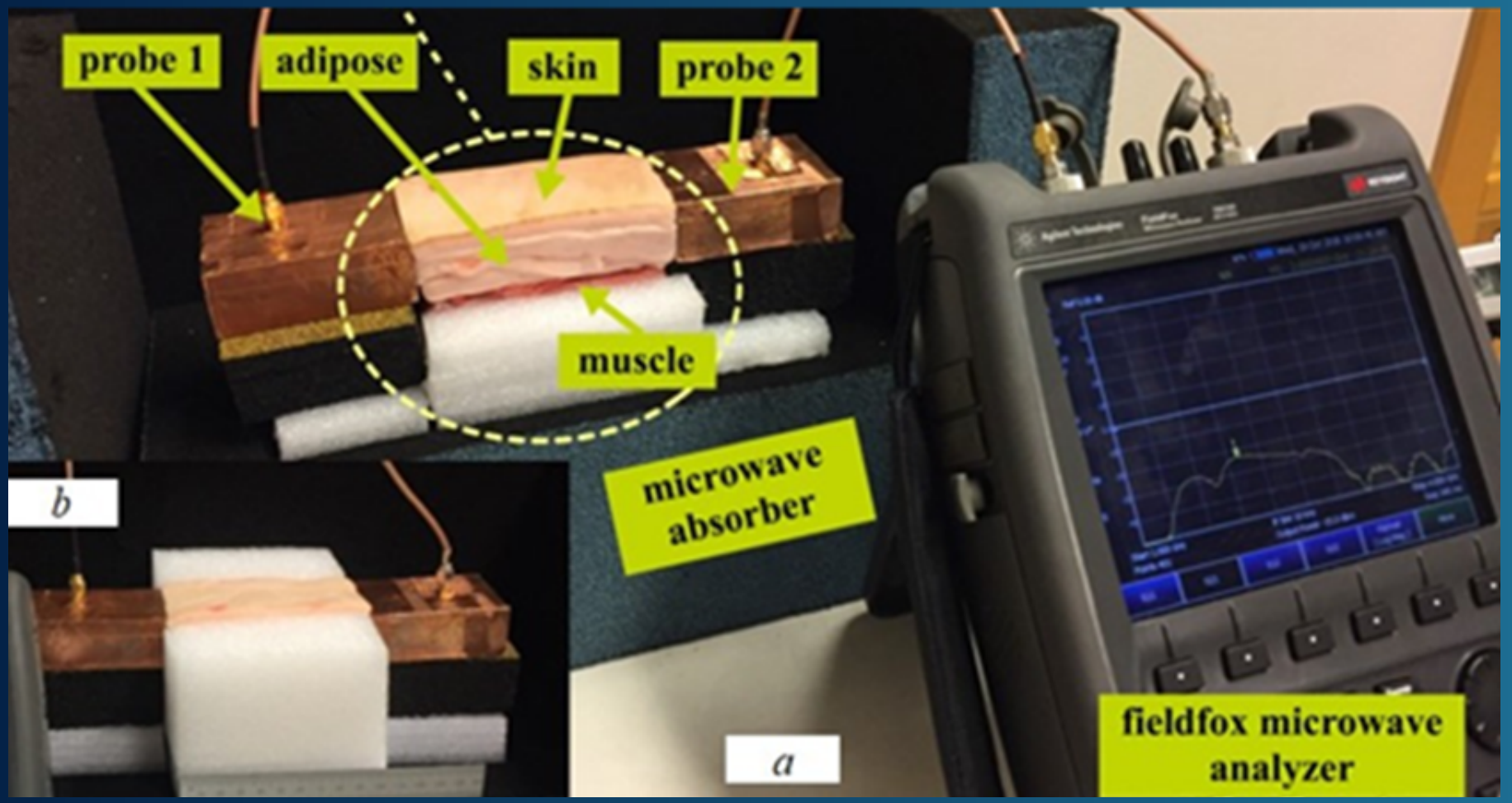
Fat-IBC within B-CRATOS

In the B-Cratos project, we're designing a **Fat-IBC platform**. Once fully integrated with our developed neural interface and sensorized bionic limb subsystems, it will showcase **real-time, two-way transmission of recorded neural data and sensory stimulation signals** between the brain and machine.



Step by step testing

Uppsala University leads the intriguing and demanding task of exploring Fat-IBC as a novel intrabody communication technique. They are conducting comprehensive tests on various phantom models to **evaluate the reliability and robustness of Fat-IBC interfaces and modems**. This effort is supported by **LINKS Foundation**.



To know more and follow our progresses, you can check our public reports!

- Fat-IBC Antenna and transceiver – preliminary report (month 12)

www.b-cratos.eu