Multi-parameter in vivo sensing platform for intrauterine studies and subfertility diagnostics

R.H.G.Mingels¹, S.Kalsi¹, S.Lu², Y.Cheong³, H.Morgan¹

1 University of Southampton Electronics and Computer Science; 2 Vivoplex Medical; 3 University of Southampton, Faculty of medicine.

Introduction

Low-power, in vivo sensing can aid in the diagnosis of subfertility through unknown causes. A continuous rise in female patients suffering from this form of subfertility is expected in the next decade. To properly assess the condition, real-time, continuous monitoring of the uterine physiology during the menstrual cycle is required. An implantable sensor platform, employing wireless communication and power transfer is presented in this work. For the first time, a novel diagnostic device can help couples achieve their dream.

Results

- Long-term monitoring of pH, DO and temperature (>30 days)
- Low-power sensing with miniature electrodes
- Wireless power transfer from implantable to garment
- Unobtrusive data collection via communication link

The author would like to acknowledge NIHR and Vivoplex for funding and supporting this work.