TCS/19/11- Microwave treatment for anogenital disease

Anogenital precancerous lesions can be difficult and painful to treat and treatment can be associated with complications. For example, >1% of people experience genital warts, which are treated with cryotherapy and creams which sting and can cause inflammation. Cervical pre cancers are also common (13,000 new cases per annum in Scotland) and are treated by excision, sometimes leading to subsequent bleeding and increased risk of preterm birth. These conditions are caused by human papillomaviruses (HPVs). Our collaborators, Emblation Limited, a Scottish medical device manufacturer (http://www.emblation.com/), developed a microwave “pen” that can clear HPV-associated diseases just by mild heating of the tissue. Work using well-proven laboratory models of anogenital pre cancers and genital warts is necessary before progressing to a clinical trial. We will test how microwaving affects living tissues and ask if microwaving stops the HPV virus growing in the tissues. An important part of this project will be to understand if and how microwaving can activate antiviral immunity against the anogenital-infective HPVs. In the end, microwave treatment could be an innovative, acceptable and non-painful means to treat anogenital disease. This would benefit patients by providing better-tolerated treatment devoid of after effects and benefit clinicians by reducing clinic time and resources.