

The title of the project

Development of Nano-based technology for differential temperature detection of early malignant lesion

Name/address/email

Professor Dr Nor Hayati Othman

Jabatan patologi, PPSP

Email: hayati@kb.usm.my

Potential Partner

Physicists

Objective

1. To develop nano-based internal thermometer
2. To conduct clinical trial on early cancer detection using this new device

Brief methodology/design

[for physicist to write the methodology for the first objective. – the thermometer must have these qualities

1. highly sensitive and specific to detect subtle focal temp change due to increase blood flow in any organ of the body
2. able to differentiate normal physiological blood flow due to exercise or other adrenergic physiological response from non-stimulatory increase blood flow [ie autonomous increase in blood flow in early cancer.
3. Able to differentiate other causes of increase local blood flow due to inflammatory changes
4. Easy to use and ‘user-friendly’

For the 2nd objective – Clinical trials using 100 normal volunteers, 100 known early cancer patients diagnosed using conventional screening method and 100 patients with focal acute inflammatory lesions. The ability of this device to differentiate these different categories will be scored and statistically analysed

Outcome of the projects

1. For early non-invasive [probably cheaper] cancer detection device – currently the only cancer screening tools are Pap smear [for cervical cancer] and Mammogram [for breasts] – plus some blood testing to look at presence of tumour marker. Pap smear has wide range of sensitivity from 20-80% and mammogram is ‘painful’ and expensive. Assaying blood tumour markers are not specific nor sensitive, and the procedure is invasive.
2. A new early cancer detector device - if successful would be revolutionary!