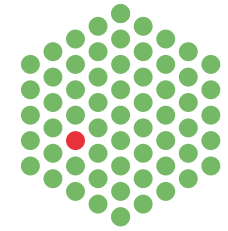


EMBL  
Australia



## Partner Laboratory Group Leader Applicant

### Kirsty Spalding – 11:10am

*Department of Cell and Molecular Biology, Karolinska Institute, Sweden*

#### **Adipose tissue maintenance in man**

What determines the fat mass in humans is largely unknown. The generation of adipocytes is a major factor behind the growth of adipose tissue during childhood, however the factors determining the fat mass in adults are not fully understood. It was previously believed that in adults, adipose tissue expands almost exclusively because of an enlargement (lipid filling) of pre-existing fat cells (Bjorntorp, 1974; Hirsch and Batchelor, 1976). However, colleagues and I have recently shown that in the subcutaneous abdominal depot there is a continual turnover of fat cells which occurs at all adult ages and body mass levels (Spalding et al., 2008). About one-tenth of the total fat cell pool is renewed every year due to continuous adipogenesis and adipocyte death. The following studies build on this recently developed strategy (radiocarbon dating of DNA) to investigate the regulation of the fat mass in adult humans.

Turnover studies will be performed using a recently developed strategy whereby  $^{14}\text{C}$  derived from nuclear bomb tests integrates into genomic DNA (cell turnover) or triglyceride (lipid turnover) and can subsequently be used to determine cell or lipid age (Spalding et al., 2005a; Spalding et al., 2008; Bernard et al., 2009). Basic physical properties of adipocytes, such as how cell size relates to cell age and lipid turnover, as well as possible DNA responses to increased lipid load (hypertrophy), will also be investigated.

Wednesday  
4 August  
11:10am  
Meeting Room G19  
Ground Floor  
STRIP (Building 75)  
Monash University  
Clayton