Abstract

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Title of Diploma Thesis: Localisation of FUBP3 Protein in Human Cervical Cancer Cell Line

Osteoporosis is a skeletal disorder characterised by an impaired bone mass, strength and microarchitecture which leads to a higher risk of fracture. The disease is predominant in postmenopausal women but also affects older men and other risk groups, such as oncological patients.

To ascertain the genetic basis of osteoporosis, multiple genome-wide association studies have been performed with the aim to identify genes with a role in the diseases. These studies discovered multiple genetic loci associated with a higher risk of osteoporotic fractures, one of which was far upstream element-binding protein 3 (FUBP3). Works studying the properties of this protein such as cellular localisation are scarce. Therefore, we focused on establishing a protocol for visualisation of FUBP3 and its co-localization with other cellular structures in a human cervical cancer cell line (HeLa).

The visualisation was done using immunostaining of FUBP3 and GM130, a matrix protein of Golgi apparatus, and subsequent imaging with fluorescence microscopy. To confirm the immunostaining selectivity, we used shRNA mediated silencing of FUBP3 expression.

In this pilot study, we were able to successfully use immunofluorescence to visualise both FUBP3 and GM130 in HeLa cells as well as perform co-localization of both proteins at the same time. The established methodology will be utilized in further research in this field using another cellular model.