

Resorption Service Enquiry

Name: _____

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Please indicate your area of interest below and faxback to PalindromX on:

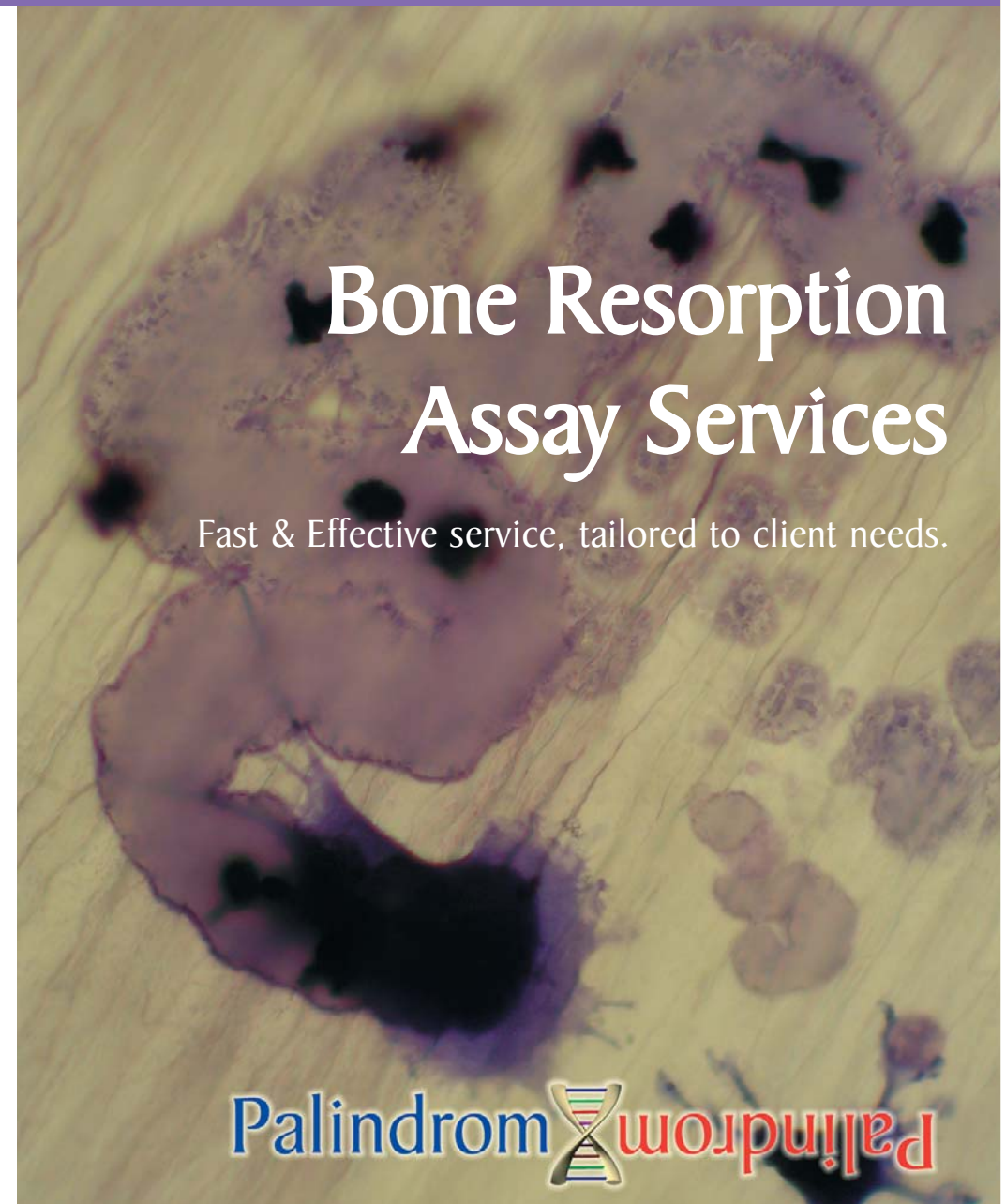
+44 (0) 151 794 5517, alternatively e-mail your enquiry to J.A.Gallagher@liverpool.ac.uk

- Osteoclastogenesis.
- Area of resorption by microscopy.
- Measurement of C-Terminal Telopeptide (CTx)



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Custom *In-Vitro* Resorption Assay Services for the
Pharma/Biotech Industry

PalindromX

Custom *In Vitro* Bone Resorption Assay Services

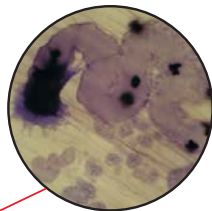
Introduction

PalindromX offers a custom *in vitro* bone resorption assay service that is available to the pharma and biotech industries and to other researchers. PalindromX scientists and technical staff have many years experience in developing, undertaking and modifying *in vitro* resorption assays and we are always willing to discuss the specific needs of customers. Our clients include large international pharma and several biotech companies

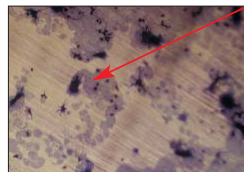
The standard assays that we offer are based on the bone slice/dentine disc assay in which osteoclasts excavate authentic resorption lacunae on calcified substrates⁽¹⁻³⁾. We routinely offer this service with human osteoclasts derived from peripheral blood, but assays using osteoclasts from many other species can be arranged.

Bone Resorption

Bone resorption is brought about by osteoclasts, large multinuclear cells formed from the fusion of mononuclear precursor cells of haemopoietic origin. The state of the art technique for investigating bone resorption *in vitro* is the bone slice / dentine disc assay in which osteoclasts are seeded onto resorbable substrates and the excavation of resorption lacunae is measured. This system has been used extensively to investigate the regulation of bone resorption and is now the "gold standard" bone resorption assay. Mature functioning osteoclasts can be isolated directly from bone of many species. However, the recent discovery of receptor **activate for nuclear factor kappa-B (NF- κ B) ligand (RANKL)** has the fundamental factor in inducing osteoclast formation⁽⁴⁾ has led to the development of techniques for generating human osteoclasts and peripheral blood monocytes.



An osteoclast generated from peripheral blood cells excavating resorption lacunae in mineralised substrates (**OsteoSite resorbable dentine discs**). Resorption can easily be quantified by reflected light microscopy, or by the determination of CTx in the culture fluid.



Services

PalindromX is a Biotech company based at the University of Liverpool. We offer a wide variety of services including the following assays:

A. Osteoclastogenesis.

Osteoclast precursors are seeded onto glass cover slips and allowed to differentiate into multinucleate osteoclasts.

B. Area of resorption by microscopy.

Osteoclast precursors are seeded onto dentine discs and induced to differentiate. Once mature, the osteoclasts can be treated with test agents over a period from one to seven days and the amount of resorption determined by reflective light microscopy⁽⁵⁾.

C. Measurement of C-Terminal Telopeptide (CTx)

C-Terminal Telopeptide (CTx) is a breakdown product of type I collagen that is produced specifically during bone resorption⁽⁶⁾. Resorption *in vitro* can be quantified by measurement of CTx released.

For further detailed information on the services offered by PalindromX, complete the enquiry form overleaf and fax-back to +44 (0) 151 794 5517

References

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5. Walsh CA, Beresford JN, Birch MA, Boothroyd B and Gallagher JA (1991). Application of reflective light microscopy to identify and quantitate resorption by isolated osteoclasts. *Journal of Bone and Mineral Research*. 6:661-671
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