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Oxford BioDynamics Plc
("OBD" or the "Company" and, together with its subsidiaries, the "Group")

Nature (Scientific Reports) publication highlights advantages of *EpiSwitch*[™] technology platform

Oxford BioDynamics Plc (AIM: OBD), a revenue-generating biotechnology company focused on the discovery and development of epigenetic biomarkers based on regulatory genome architecture, for use within the pharmaceutical and biotechnology industry, is pleased to note the peer reviewed publication of its collaborative work in the journal *Nature (Scientific Reports)* entitled: "Super-Enhancers and Broad H3K4me3 Domains Form Complex Gene Regulatory Circuits Involving Chromatin Interactions".¹

The Scientific Report, published by the Cancer Science Institute of Singapore, National University of Singapore in collaboration with Oxford BioDynamics, is focused on cancer specific genome architecture and chromosomal conformations, with the interplay between histone modifications, gene regulation and long range interactions with super-enhancers, all facilitated through chromatin interactions, which were successfully monitored by Oxford BioDynamics' *EpiSwitch*[™] platform.

Dr Alexandre Akoulitchev, Chief Scientific Officer of Oxford BioDynamics, commented:

"Melissa Fullwood and her team at the Cancer Science Institute of Singapore are leading researchers in the field of regulatory genome architecture. We are pleased that they have chosen to complement their study with our *EpiSwitch*[™] technology for the analysis of super-enhancers and H3K4me3 domain-associated chromatin interactions. *EpiSwitch*[™] was used here to verify, at high resolution, originally observed long range chromosomal interactions in cell lines and, importantly, in patient clinical samples, for chronic myelogenous leukaemia. This successful collaboration is another good example of using the *EpiSwitch*[™] platform as a practical tool for analysing and deconvoluting multiple epigenetic data sets for insights into genome regulation and genome architecture."

The full abstract of the paper can be found below.

Abstract

Super-Enhancers and Broad H3K4me3 Domains Form Complex Gene Regulatory Circuits Involving Chromatin Interactions

Stretched histone regions, such as super-enhancers and broad H3K4me3 domains, are associated with maintenance of cell identity and cancer. We connected super-enhancers and broad H3K4me3 domains in the K562 chronic myelogenous leukemia cell line as well as the MCF-7 breast cancer cell line with chromatin interactions. Super-enhancers and broad H3K4me3 domains showed higher association with chromatin interactions than their typical counterparts. Interestingly, we identified a subset of super-enhancers that overlap with broad H3K4me3 domains and show high association with cancer associated genes including tumor suppressor genes. Besides cell lines, we could observe chromatin interactions by a Chromosome Conformation Capture (3C)-based method, in primary human samples. Several chromatin interactions involving super-enhancers and broad H3K4me3 domains are constitutive and can be found in both cancer and normal samples. Taken together, these results reveal a new layer of complexity in gene regulation by super-enhancers and broad H3K4me3 domains.

¹ *Scientific Reports* **7**, Article number: 2186 (2017) [doi:10.1038/s41598-017-02257-3](https://doi.org/10.1038/s41598-017-02257-3)



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Notes for Editors

About Oxford BioDynamics Plc

Oxford BioDynamics Plc (AIM: OBD) ("Oxford BioDynamics") is a revenue-generating biotechnology company focused on the discovery and development of epigenetic biomarkers for use within the pharmaceutical and biotechnology industry.

The Company's award-winning, proprietary technology platform, *EpiSwitch*[™], aims to accelerate the drug discovery and development process, improve the success rate of therapeutic product development and take advantage of the increasing importance of personalised medicine.

In particular, *EpiSwitch*[™] can reduce time to market, failure rates and the costs at every stage of drug discovery. Additionally, the technology provides significant insights into disease mechanisms for drug discovery and product re-positioning programmes, and enables the personalisation of therapeutics for patients in the context of challenging pricing environments where improved clinical outcomes are critical.

Oxford BioDynamics is headquartered in the UK, and listed on the London Stock Exchange's AIM under the ticker "OBD". For more information please visit www.oxfordbiodynamics.com.