Rothamsted Repository Download

G - Articles in popular magazines and other technical publications

Theodoulou, F. L. 2017. *We are not alone*. Portland Press Ltd.
doi:10.1042/BIO03902003

The publisher's version can be accessed at:

- [https://dx.doi.org/10.1042/BIO03902003](https://dx.doi.org/10.1042/BIO03902003)

The output can be accessed at: [https://repository.rothamsted.ac.uk/item/96z46/we-are-not-alone](https://repository.rothamsted.ac.uk/item/96z46/we-are-not-alone).

© 1 April 2017, Portland Press Ltd.

---

25/11/2019 15:30  repository.rothamsted.ac.uk  library@rothamsted.ac.uk
We are not alone

by Freddie Theodoulou, Science Editor

I’m not talking about aliens: the title of this editorial refers to the microscopic organisms whose ancestors inhabited our planet long before humans walked the earth. With the exception of plants and animals deliberately raised in sterile laboratory conditions, all of us are colonized—within and without—by trillions of microorganisms. This community of bacteria, fungi and archaea, collectively called the microbiota or microbiome is arguably as important as any of the cells that make up our tissues and organs. Bacteria have traditionally suffered a bad press as disease-causing baddies, but the explosion of studies reporting pervasive beneficial effects of the microbiome represents an image change that would make any self-respecting PR agency green with envy. Long recognized for assisting digestion, we now know that gut bacteria influence our metabolism, impact our immune system and can even reset our circadian clocks. As associations between disease and gut dysbiosis are increasingly reported, altered microbial signatures have become warning beacons for serious underlying conditions and whilst there is still some work to do to separate cause from effect, manipulation of microorganisms is an emerging target for therapy.

The vast majority of microbes are unculturable but the advent of next-generation sequencing has opened up the world of the microbiome and spawned a metagenomics frenzy. Pretty much everything from aardvarks to zebras has been swabbed and sequenced, leading to gleeful popular science articles (“Some beards as dirty as toilets”, “Bearded men have poop on their faces”, “Your mobile phone carries your microbiome”). Microbiome studies are not just limited to the here and now: in a recent report, the scrapings from a handful of Neanderthal teeth proved sufficient to suggest that our closest hominin relatives dined on woolly rhino and pine nuts, dabbled with herbal medicines and probably enjoyed the odd snog. Racy headlines notwithstanding, the DNA analysis was truly impressive, with 10x coverage of a 48,000-year old archaean genome.

This month, The Biochemist features a focus on the human microbiome, but the microbes that live in and alongside other organisms are just as fascinating and just as important. Plants have intimate, complex and dynamic relationships with soil microbes that underpin the health of the ecosystem and the production of our food. Lurking below the surface, plant roots tailor their local soil microbiome by secreting attractants and key nutrients, allowing them to recruit microorganisms that facilitate nutrient uptake and combat soil-borne diseases. In a neat parallel with human medicine, manipulating the soil microbiome for agricultural and environmental benefit is an inexact but promising science. Soil, with its kaleidoscopic community of microorganisms is no longer dismissed as dirt, but valued as a potential source of much-needed new antibiotics. A topic that has the potential to bring together clinicians, soil scientists, drug developers and more, the microbiome continues to intrigue, inform and offer routes to improve our quality of life.

For advertising and inserts contact:
Marketing Department
Biochemical Society
Charles Darwin House
12 Roger Street
London WC1N 2JU
tel.: +44 (0) 20 7685 2411; fax: +44 (0) 20 7685 2469
e-mail: marketing@biochemistry.org

Production by Portland Press Limited
Editor: Helen Albert
Typesetting and layout: Rowena Weedon
Design by Peter Jones

Printed by Cambrian Printers Ltd, Aberystwyth
Published by Portland Press Limited six times a year (February, April, June, August, October and December).
©2017 Biochemical Society
ISSN 0954-982X (Print); ISSN 1740-1194 (Online)

Charles Darwin House
12 Roger Street
London WC1N 2JU
tel.: 020 7685 2410
e-mail: biochemist@biochemistry.org
website: http://www.biochemist.org
Registered charity no. 253894

Subscriptions
e-mail: licensing@portlandpress.com

Science Editor: Freddie Theodoulou (Rothamsted Research, UK)

Editorial Panel: Rob Beynon, Sheila Graham, David Pye,
Nicola Gray, Fraser MacMillan and Chris Willmott

The Editors are pleased to consider items submitted by Society members for publication. Opinions expressed in signed articles are not necessarily those of the Society.

US agent: Air Business Ltd, c/o Worldnet Shipping Inc.,
156–15, 146th Avenue, 2nd Floor, Jamaica, NY 11431, USA

Periodicals postage paid at Jamaica, NY11431,USA.
Postmaster: address corrections to The Biochemist,
Air Business Ltd, c/o Worldnet Shipping Inc.,
156–15, 146th Avenue, 2nd Floor, Jamaica, NY 11431, USA