

July 2019

Investigating Cancer Resistance of the Naked Mole-Rat

AMSBIO reports on the pioneering research published** in a collaborative effort between researchers in the School of Engineering, University of Newcastle and Department of Pharmacology, University of Cambridge, UK that has cited Biotinylated Hyaluronan Binding



Ewan St John Smith (an author of the paper, right) with naked mole rat. Image courtesy of Dr. Ewan St John Smith, Department of Pharmacology, University of Cambridge (UK)

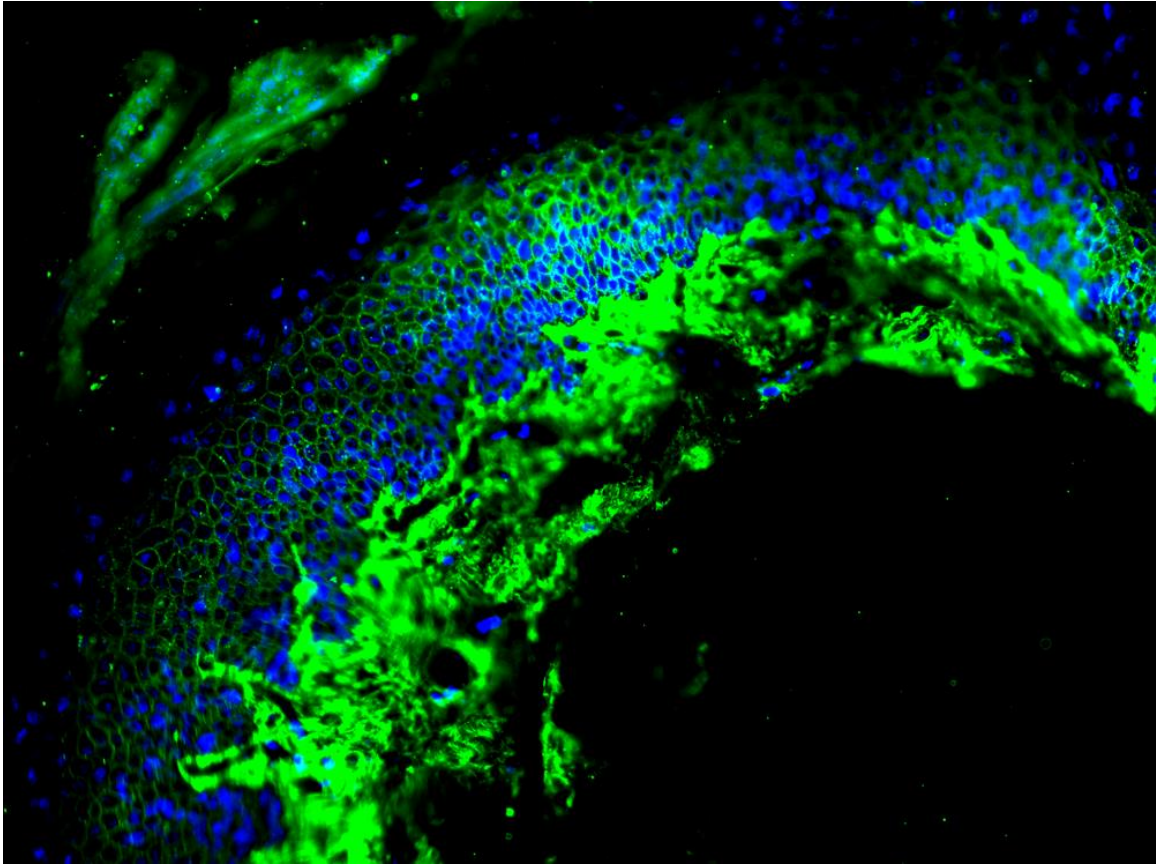
Protein (biotin-HABP) supplied by the company in its **investigation into the cancer resistance of the naked mole-rat (NMR)**.

Hyaluronan (also known as Hyaluronic Acid, or HA) is a glycosaminoglycan with a simple conserved structure. It is widespread in the extracellular matrix, playing many roles in health and disease. Because of its simplicity and ubiquity, Hyaluronan is not immunogenic so classical immunological analysis has not been possible. Available in biotinylated and purified formats - AMSBIO HABP is produced as a recombinant protein in *E. coli* transfected with human versican G1-domain. Recombinant production of AMSBIO HABP means that it offers higher safety compared with animal-derived HABP. AMSBIO recombinant HABP specifically detects Hyaluronan, binding to Hyaluronan from all species and tissues. It does not cross-react to other Glycosaminoglycans or to DNA.

Given the fundamental role of hyaluronan

in the cancer resistance of the NMR, the research groups of Dr Daniel Frankel at the University of Newcastle and Dr Ewan St John Smith at the University of Cambridge undertook to explore the structural and soft matter properties of this species-specific variant, a necessary step for its future development as an exciting new biomaterial.

Dr St. John Smith commented "The biotin-HABP product supplied by AMSBIO was vital for us to be able to visualise the tissue distribution of hyaluronan in mouse versus NMR skin. The images were so brilliant that we have started using biotin-HABP in other studies, including looking at the effects of colitis on colonic hyaluronan distribution".



Section of naked mole-rat skin, stained with biotin-HABP. (NMR forepaw, plantar skin, stained for HA using HABP and streptavidin-Alexa488 (green) and DAPI nuclear stain (blue)). Image courtesy of Dr. Ewan St John Smith, Department of Pharmacology, University of Cambridge (UK)

He added "In common with mouse hyaluronan, NMR hyaluronan forms a range of assemblies corresponding to a wide distribution of molecular weights. However, unique to the NMR, are highly folded structures, whose characteristic morphology is dependent on the tissue type. From our research we hypothesise that it is these densely folded structures that might form an impenetrable barrier for the invasion required for cancer metastasis and tumour growth".

For further information

please on biotin-HABP please visit www.amsbio.com/Proteoglycans-Glycosaminoglycans-HABP.aspx or contact AMSBIO on 44-1235-828200/+1-617-945-5033 [/info@amsbio.com](mailto:info@amsbio.com). For further information on the research activities of the St. John Smith and Frankel Research Groups please visit www.phar.cam.ac.uk/research/Smith and www.ncl.ac.uk/engineering/staff/profile/danielfrankel.html#background respectively.

Founded in 1987,

AMS Biotechnology (AMSBIO) is recognized today as a leading transatlantic company contributing to the acceleration of discovery through the provision of cutting-edge life science technology, products and services for research and development in the medical, nutrition, cosmetics and energy industries. AMSBIO has in-depth expertise in extracellular matrices to provide elegant solutions for studying cell motility, migration, invasion and proliferation. This expertise in cell culture and the ECM allows AMSBIO to partner with clients in tailoring cell systems to enhance organoid and spheroid screening outcomes using a variety of 3D culture systems, including organ-on-a-chip microfluidics.

For drug discovery research, AMSBIO offers assays, recombinant proteins and cell lines.

Drawing upon a huge and comprehensive biorepository, AMSBIO is widely recognised as a leading provider of high-quality tissue specimens (including custom procurement) from both human and animal tissues. The company provides unique clinical grade products for stem cell and cell therapy applications-these include high quality solutions for viral delivery (lentivirus, adenovirus and adeno-associated virus) in addition to GMP cryopreservation technology.

** Published research - <https://www.nature.com/articles/s41598-019-43194-7>

Worldwide HQ

AMS Biotechnology (AMSBIO)

184 Milton Park
Abingdon
Oxon OX14 4SE
UK

Tel: +44-1235-828200
Fax: +44-1235-820482
Email: info@amsbio.com
Web www.amsbio.com

North American HQ

AMSBIO LLC

1035 Cambridge Street
Cambridge
MA 02141
USA

Tel: +1.617.945.5033
Tel: +1.800.987.0985 (toll free)
Email: info@amsbio.com
Web www.amsbio.com