Department of Health & Social Care

Projects supported by DHSC through the Global AMR Innovation Fund

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The following document includes all projects currently funded by the Global AMR Innovation Fund (GAMRIF).

Contents

The Global AMR Innovation Fund (GAMRIF) portfolio

The GAMRIF portfolio includes seven different work packages, consisting of:

- **Bilateral partnerships** between the UK and other countries to fund collaborative research projects, including:
    - UK-China: Innovation and Collaboration to tackle antimicrobial resistance (AMR), delivered on behalf of DHSC by UKRI (Innovate UK)
    - UK-Argentina: Tools to tackle AMR in the Environment, delivered on behalf of DHSC by UKRI (BBSRC and NERC)
- **Global research initiatives**, where GAMRIF partners with research institutions that will drive product development research, including:
    - Accelerating Antibacterial Innovation with the Combating Antibiotic-Resistant Bacteria Biopharmaceutical Accelerator (CARB-X)
    - InnoVet AMR: Innovative Veterinary Solutions for AMR with the International Development Research Centre (IDRC)
    - Vaccine Innovation with BactiVac (a global bacterial vaccinology network)
- **Product development partnerships** (PDPs), where GAMRIF supports non-profit organisations that work strategically alongside product developers to bring solutions to the market ensuring affordability and access in LMICs. Projects include:
    - Innovation in AMR Diagnostic Tools with the Foundation for Innovative New Diagnostics (FIND)
    - New antibiotic treatment for Drug-Resistant Gonorrhoea with the Global Antibiotic Research and Development Partnership (GARDP)

Work Package 1: UK-China projects

Project Title	Funding amount from GAMRIF (GBP)	Category of research	UK lead institution	Chinese lead institution	Other UK partner institution(s)
Multifunctionalized Microalgae (MM) - A novel and flexible platform technology for maximising feed/energy conversion ratios and treating severe infections in livestock	£726,472	Animal	Amalga Technologies Ltd	Institute of Animal Sciences of Chinese Academy of Agricultural Sciences	Moredun Research Institute; Plymouth Marine Laboratory; Rothemsted Research Ltd; University of Exeter
Novel biocontrol to combat *Clostridium perfringens* in poultry flocks (Phagiotic)	£749,854	Animal	Arden Biotechnology Ltd	Jiangsu Academy of Agricultural Sciences (JAAS)	Avara Foods Ltd; University of Lincoln
Adding Chinese herbal medicine to antibiotic treatment for acute exacerbation of chronic obstructive pulmonary disease	£742,085	Human	Phoenix Medical Ltd	Beijing University of Chinese Medicine	University of Southampton
An integrated microfluidic – single cell Raman technology for rapid diagnosis of pathogens and their antibiotic resistance	£748,508	Human	Epigem Ltd	Zhejiang University	University of Glasgow; University of Oxford
Development of attenuated bovine herpesvirus-4 as a safe, inexpensive, single dose vaccine to control *Streptococcus suis* infection in domestic pigs	£697,784	Animal	The Vaccine Group	Shanghai Veterinary Research Institute (SHVRI)	University of Plymouth
Farm Watch: Fight AbR with Machine learning and a Wide Array of sensing Technologies	£743,206	Animal	Nimrod Veterinary Products Ltd	China National Center for Food Safety Risk Assessment	University of Nottingham

Project Title	Funding amount from GAMRIF (GBP)	Category of research	UK lead institution	Chinese lead institution	Other UK partner institution(s)
Evaluation of the novel XF drugs as bacterial resistance breakers	£642,659	Human	Destiny Pharma Plc	Tianjin Medical University	Cardiff University
Research and development of alternative feeding antibiotic products from herbs	£670,408	Animal	KPAD Ltd	Hunan Agricultural University	University of Nottingham
Development of a shortlist-and-test diagnostic platform for brucellosis in livestock	£689,171	Animal	Biotangents Ltd	Shanghai Veterinary Research Institute (SHVRI)	Cranfield University; IceRobotics Ltd
Encapsulated antimicrobial precursors for non-antibiotic treatment of MDRO in poultry	£489,339	Animal	GAMA Healthcare Ltd	Shanghai Veterinary Research Institute (SHVRI)	AGA Nanotech Ltd; CIELivestock Ltd; Scotland's Rural College
Development of key technologies for real-time diagnosis, surveillance and intervention of resistant-bacterial infections based on nanopore sequencing	£642,075	Human	Oppilotech Ltd	Peking University People's Hospital	Quadram Institute Bioscience
Development of an early diagnostic system for CRE in a prospective ECMO cohort	£726,000	Human	Oxford Vacmedix UK Ltd	Beijing Ditan Hospital; Capital Medical University	Imperial College London
New smart diagnostics for infection	£749,599	Human	Molecular Warehouse	Rui-Jin Hospital; Shanghai Jiao-Tong University	University of Surrey
Novel small molecule and TCM approaches to support pig production, minimizing generation of resistance to human antibiotics	£740,693	Animal	Oxford Drug Design	Huazhong Agricultural University	University of Portsmouth

Project Title	Funding amount from GAMRIF (GBP)	Category of research	UK lead institution	Chinese lead institution	Other UK partner institution(s)
	Total funding allocated: £9,757,853				

Work package 2: CARB-X projects

Project Title	Funding amount from GAMRIF (USD)	Category of research	Lead investigator
IBT-V02: A Novel Toxin-based Multivalent Vaccine for *Staphylococcus aureus*	$3,344,688	Human	Integrated BioTherapeutics, Inc. (IBT)
Precision medicine antimicrobial agents, PRO-202 (this project ended in February 2020)	$1,141,350	Human	Procarta Biosystems Ltd
BB100, A Humanized Monoclonal Antibody	$1,498,699	Human	BB100 LLC (a subsidiary of Bravos Bioscience)
Safe Universal Carbohydrate Conjugate Group A Streptococcal Vaccine	$540,785	Human	SutroVax, Inc
AVATAR-SA (Anti-Virulence Adjuvant Therapy against Resistant *S. aureus*)	$1,969,092	Human	Bioversys AG
Stapled Antimicrobial Peptides for Gram-negative Infections	$ 1,760,549	Human	Lytica Therapeutics, Inc
	Total funding allocated: US$ 10,255,163		

Work package 3: InnoVet AMR projects

Project title	Funding amount from GAMRIF (CAD)	Category of Research	Lead investigator	LMIC co-investigator (s)	Non-LMIC co-investigator
Novel vaccine design for preventing *Streptococcus su*is in swine	$983,584	Animal	University of Montreal, Canada	Thammasat University, Thailand	University of Alberta, Canada
Bacteriocins: a promising natural alternative to replace antibiotics in poultry production	$1,191,453	Animal	Université Laval, Canada	Institut Supérieur des Sciences Biologiques Appliquées de Tunis, Tunisia	Muséum national d'Histoire naturelle (MNHN), France
Using phages for the replacement of antibiotics, and reduction of drug resistant nontyphoidal *Salmonella*, in poultry farms in Kenya	$1,840,348	Animal	Université Laval, Canada	International Livestock Research Institute (ILRI), Kenya	n/a
Investigating the use of nanobubble technology in aquaculture	$1,765,235	Aquaculture	City University of Hong Kong, China	Research Institute for Aquaculture No. 1, Vietnam; Suan Sunandha Rajabhat University, Thailand	n/a
Development and commercialization of antibiotic alternatives: phages and nutraceuticals for Pakistan poultry production	$1,876,518	Animal	Purdue University, USA	University of Punjab, Pakistan; University of Veterinary and Animal Sciences, Pakistan	n/a
Developing a sustainable nanoparticle-based vaccine solution for broilers and layers against *Escherichia coli* in low and	$1,135,440	Animal	Lesaffre International	Imunova Analises Biologicas Ltda, Brazil	Vaxinano, France

middle-income countries					
Novel approaches to identify optimal antiviral probiotics for swine industry in low-income countries	$908,323	Animal	The Ohio State University Foundation, USA	University of Nairobi, Kenya	n/a
Developing pituitary adenylate cyclase-activating polypeptide into a treatment for microbial infections in fish and shrimp aquaculture	$1,380,610	Aquaculture	University of Waterloo, Canada	Centro de Ingeniero Genetica y biotechnologia Universidad de la Habana (Centro de Investigaciones Marinas), Republic of Cuba	University of PEI Veterinary College, Canada
Integrated quorum quenching strategies to reduce antimicrobial resistance in shrimp aquaculture (i-QAS)	$878,832	Aquaculture	Universiti Putra Malaysia, Malaysia	n/a	n/a
Disease intervention targets for porcine *Streptococcus suis* infections in Vietnam	$864,587	Animal	University of Nottingham, UK	National Institute of Veterinary Research, Vietnam	n/a
Polyvalent vaccine for freshwater catfish (Pangasius)	$806,526	Aquaculture	University of Stirling, UK	Southern Monitoring Centre for Aquaculture, Environment and Epidemics, Vietnam	n/a
	Total funding allocated: CA$ 13,631,456				

Work package 4: UK-Argentina projects

Project title	Funding amount from GAMRIF (GBP)	Category of research	UK lead institution	Argentinean lead institution	Other partner institution(s)
Mapping the patterns and drivers of antibiotic use and environmental resistance in the Argentine beef industry	£904,388	Environment and Animal	University of Liverpool	Centro de Investigación Veterinaria de Tandil	n/a
Developing a conceptual framework to improve understanding of AMR in livestock systems: translating research into policy and practice	£1,027,191	Environment and Animal	University of Exeter	Administración Nacional de Laboratorios e Institutos de Salud “Dr Carlos G Malbrán”	Rothamsted Research at University of Edinburgh, UK
Farms-safe: Future-proofing Antibacterial resistance Risk Management Surveillance and Stewardship in the Argentinian Farming Environment	£1,029,091	Environment and Animal	University of Bristol	Universidad Nacional de La Plata	King's College London, UK; University of Bristol, UK
Environmental and Economic Impacts of Improved Antibiotics Stewardship in Poultry Systems	£687,418	Environment and Animal	University of Edinburgh	Instituto Nacional de Tecnología Agropecuaria	Scotland's Rural College (SRUC), UK
Role of poultry litter in antimicrobial resistance (AMR): associated risks and potential mitigation strategies	£1,019,404	Environment and Animal	University of Nottingham	Administración Nacional de Laboratorios e Institutos de Salud “Dr Carlos G Malbrán”	University of Lincoln; NERC Centre for Ecology and Hydrology at University of Leeds, UK

Project title	Funding amount from GAMRIF (GBP)	Category of research	UK lead institution	Argentinean lead institution	Other partner institution(s)
	Total funding allocated: £4,667,492				

Work Package 5: FIND projects

Project title	Funding amount from GAMRIF (GBP)	Category of research	Lead investigator
Diagnostic connectivity for antimicrobial resistance	£5,120,528	Human and animal	Foundation for Innovative New Diagnostics (FIND)
Ensuring stewardship of new gonorrhoea antibiotics through diagnostics	£4,999,705	Human	Foundation for Innovative New Diagnostics (FIND)
	Total funding allocated: £10,120,233		

Work package 6: GARDP projects

Project title	Funding amount from GAMRIF (GBP)	Category of research	Lead investigator
Sexually Transmitted Infections Programme (April 2018 to March 2019)	£1,000,000	Human	Global Antibiotic Research & Development Partnership (GARDP)
Sexually Transmitted Infections Programme (July 2019 to March 2022)	£3,500,000	Human	Global Antibiotic Research & Development Partnership (GARDP)
	Total funding allocated: £4,500,000		

Work Package 7: BactiVac projects

Project title	Funding awarded from GAMRIF (GBP)*	Category of research	Lead investigator institution	LMIC co-investigator institution(s)
Towards the production of "Shigella plus" a low-cost recombinant *Shigella* glycoconjugate vaccines	£83,986	Human	London School of Hygiene and Tropical Medicine, UK	Oxford University Clinical Research Unit (OUCRU), Vietnam
Optimisation of novel mucosal vaccines to prevent bacterial diseases of Tilapia *(Oreochromis niloticus)*	£48,217	Aquaculture	University of Stirling, UK	Biotechnology Centre of Ho Chi Minh City, Vietnam
Evaluation of the sublingual route of immunisation for the induction of mucosal and systemic immune responses to polysaccharide-protein conjugate vaccines	£50,000	Human	University College London, UK	The Biovac Institute, South Africa
Development of a novel intranasal vaccine against pneumococcal infection in children	£50,000	Human	University of Liverpool, UK	n/a
Developing whole cell vaccines with tailored immunogenicity through combinatorial engineering of lipid A	£49,064	Human	University of Bath, UK	Laboratory of Biologicals & Reagents of Mexico (BIRMEX), Mexico
Prevalence and serotype distribution of group B *Streptococcus* in León, Nicaragua	£49,850	Human	University of North Carolina at Chapel Hill, USA	National University of Nicaragua, Nicaragua
Molecular epidemiology of Group A *Streptococcus* in West Africa (acronym: MEGAS)	£79,997	Human	MRC Unit The Gambia at LSHTM, Gambia	n/a
Advancing a native outer membrane vesicle vaccine against gonorrhoea towards clinical development	£64,864	Human	Jenner Institute at University of Oxford, UK	University of the Witwatersrand, South Africa
New correlates of protection for an *Escherichia coli* vaccine	£49,074	Human	University of Leicester, UK	n/a
Antigen discovery to accelerate *Acinetobacter baumannii* vaccine development	£37,317	Human	Imperial College London, UK	Oxford University Clinical Research Unit

				(OUCRU), Vietnam
Development of a bivalent vaccine against *Acinetobacter baumannii (A. baumannii)* and *Streptococcus agalactiae (S. agalactiae)*	£50,000	Human	Bio-Manguinhos: Oswaldo Cruz Foundation, Brazil	n/a
Towards a bivalent enteric fever vaccine: exploring the potential of a paratyphoid vaccine candidate combined with a typhoid conjugate vaccine	£46,380	Human	University of Oxford, UK	Bharat Biotech International Ltd, India
Maternal intranasal vaccination using novel Pneumolysin conjugated vaccines to protect offspring from pneumococcal infection	£62,876	Human	University of Cape Town, South Africa	n/a
SAL-O5_Asses the variation in lipopolysaccharide structure in circulating African invasive *Salmonella* typhimurium isolates to predict vaccine coverage	£35,242	Human	University of Antwerp, Belgium	University of Cape Town, South Africa; Institute for Biomedical Research (INRB), DRC
Targeting AMR via the lymphatic system	£48,686	Human	Imperial College London, UK	n/a
Vaccination to break plague transmission in Madagascar	£46,605	Human	University of Strathclyde, UK	Institut Pasteur Madagascar, Madagascar
Immunizing humanised mice with outer membrane vesicles from *Acinetobacter baumannii* to study antigen recognition and vaccine development	£61,262	Human	University of Birmingham, UK	n/a
	Total funding allocated: £913,420*			

*Rounded to the nearest GBP