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Health

Date 23.11.2026 Deadline … …

CONTACT

Organisation	Scientific and Production Center "Armbiotechnology"	**Department**	Peptide Engineering Laboratory
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Country	Armenia		

Organisation type

Research organisation type	☒ Research Organisation ☐ University ☐ Company ☐ Other	**Is your company a Small and Medium Sized Enterprise (SME*)?** **Number of employees:**	☐ YES ☐ NO

Your enterprise is an SME if:
- it is engaged in **economic activity**
- it has **less than 250 employees**
- it has either an **annual turnover not exceeding €50M**, **or an balance sheet total not exceeding €43M**
- it is **autonomous**

For the definition of SMEs, look at: http://ec.europa.eu/growth/smes/business-friendly-environment/sme-definition_en

Short introduction of key areas of institute's research:

SPC "Armbiotechnology" is one of the leading research organizations of the Republic of Armenia that combines multidisciplinary research with the development and production of biotechnology-based products. Its 15 laboratories bring together expertise in microbiology, molecular biology, genetics, genetic engineering, biochemistry and organic chemistry, with applications in healthcare, pharmaceuticals, food, agriculture and environmental protection. Activities span microbial biodiversity and culture collections, the development of efficient microbial producer strains, synthesis of bioactive compounds, biocatalysis and sustainable biotechnological processes. By linking laboratory research with pilot-scale development and commercial production, the Center translates scientific knowledge into practical products and technologies.
The Center offers complementary expertise in peptide chemistry and microbiology. Its **Peptide Engineering Laboratory** designs and synthesises non-canonical amino acids, peptides and peptidomimetics using solution-phase and solid-phase methods. Research includes halogenated peptides, triazolyl amino acid derivatives, structural and physicochemical characterisation, and antibacterial structure–activity relationships. Together with the Center's microbiological teams, the laboratory investigates bacteriocins and selected combinations of peptides, amino acid derivatives and antibiotics as potential approaches against drug-resistant bacterial infections.

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Former participation in an FP European project?	☒ YES ☐ NO
Project title / Acronym:	**HE ERNA, MSCA (2026–2028).** European Researchers' Night in Armenia; Relevant institutional role: public engagement, science communication and researcher–society outreach.
Activities performed:	**PHOENIX, Horizon 2020, MSCA RISE (2015–2019).** People for tHe eurOpean bioENergy mIX; SPC "Armbiotechnology" is listed as a partner organisation, not a grant-signing beneficiary.

Expertise / Commitment offered

Description of your expertise:

Antimicrobial peptide engineering. KLFHK (Lys–Leu–Phe–His–Lys) and halogenated phenylalanine analogues, including KLF(Br)HK and KLF(I)HK; chemical diversity via residue substitution, D-amino acids, termini, chain length and physicochemical tuning.

- **Non-canonical amino acids.** Fmoc-AA-Gly and structurally related triazolyl amino acid derivatives, including incorporation into short peptides and conjugates; synthesis, purification and analytical characterization.
- **Natural antimicrobials.** Centre-level work on lactic-acid-bacteria-derived bacteriocins BCN KE5 and BCN KE13 and combinations with synthetic compounds and selected antibiotics.
- **Quantitative biological profiling.** Joint determination of MIC/MBC, checkerboard fractional inhibitory concentration indices (FICI), time-kill kinetics, biofilm effects and resistance evolution, where supported by validated partner assays.
- **Translation-oriented lead optimisation.** Assessment of stability, solubility, hemolysis, mammalian cytotoxicity and mechanism-informed SAR, with bioassay and advanced preclinical tasks shared with appropriately equipped consortium partners.

Preliminary evidence

Exploratory in-vitro observations on investigated A. baumannii strains suggest improved antibacterial responses for some BCN KE5 combinations, including BCN KE5 +Fmoc-(*S*)-β-4-allyl-3-isobutyl-5-thioxo-1,2,4-triazol-1-yl]-α-Ala-Gly and BCN KE5 + amoxicillin. These are hypothesis-generating findings; reproducible quantitative synergy, the resistance profile of the tested isolates, and activity specifically against confirmed CRAB remain to be established. The KLFHK/halogenated-peptide series provides a complementary chemical optimisation platform, not yet a clinically validated candidate.

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Keywords specifying your expertise:	Antimicrobial resistance (AMR); priority drug-resistant pathogens; antimicrobial peptides; halogenated phenylalanine; KLFHK; non-canonical amino acids; triazolyl derivatives; Fmoc-AA-Gly; bacteriocins BCN KE5/KE13; combination therapy; synergy; MIC; FICI; time-kill; mechanism of action; peptide delivery; preclinical translation. Biotechnology, Microbiology, Molecular biology, Genetics, Genetic engineering, Organic chemistry, Biochemistry, Ecology, Food Safety, Agricultural Safety, Microbiological Synthesis, Biotransformation and Biocatalysis, Biomimetic Asymmetric Synthesis, Geobiotechnology, Ecobiosafety, Biopreparations and Bioadditives, Microbial Biodiversity Non-protein and protein amino acids, Biological Fertilizers, Fermented dairy products, Galenical and non-galenical preparations
Commitment offered:	☒ Research ☐ Demonstration ☒ Training ☒ Technology ☒ Dissemination ☐ Other:

Interested in participation in project types:	☒ Research & Innovation Action	☐ Innovation Action	☐ EIC Pathfinder

Work Programme research areas: indicate your interest

We are currently interested in submitting a proposal under Destination: Tackling diseases and reducing disease burden.

Pathogen and innovation focus

The proposed research focuses on the development and optimisation of innovative antimicrobial compounds targeting drug-resistant pathogens prioritised under the Horizon Europe call. The final target pathogen will be selected in alignment with the consortium's scientific expertise, existing therapeutic candidates and experimental evidence. Particular emphasis will be placed on novel peptide-based structures, non-canonical amino acid derivatives and bacteriocin-based combinations, with the potential to support antimicrobial innovation through structural modifications, improved biological activity and mechanism-oriented optimisation.

Scope fit and maturity requirement

The 2027 topic seeks advancement of existing therapeutic candidates into a pathway that includes, as appropriate, animal efficacy studies, GMP manufacture, and human clinical safety/efficacy investigations with a clear regulatory route. SPC's current peptide–bacteriocin platforms are early-stage research contributions; they cannot on present evidence be represented as ready for clinical development. The consortium must therefore include an existing, sufficiently mature CRAB-directed lead/candidate and the organisations capable of its translational execution. Discovery-scale analogue optimisation should support, rather than replace, the call's clinical objective.

Call topic(s): HORIZON-HLTH-2027-01-DISEASE-08 — Development of innovative antimicrobials against pathogens resistant to antimicrobials.

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Do you have other partners for this topic (which partners/country)?	**PROPOSED PARTNERS (INSTITUTIONAL APPROVAL PENDING)** The following scientists have already expressed their personal agreement to collaborate on the proposed scientific direction, as confirmed by the SPC contact. Responsibilities listed below are proposed contributions matched to their documented research profiles. Institutional commitment, contractual role, budget and final WP leadership require confirmation by the respective organisations. **Dr Giovanni N. Roviello — CNR Institute of Biostructures and Bioimaging (IBB), Naples, Italy** Scientific co-design of advanced peptide/nucleopeptide systems; biophysical interaction studies, structure–function interpretation, exploratory molecular modelling, self-assembly and peptide-based delivery concepts; joint scientific supervision and training. Experience includes the EU projects PurHumanDrome and NoBiasFluors. **Dr Alessandro Gori — CNR Institute of Chemical Sciences and Technologies "Giulio Natta" (SCITEC), Milan, Italy** Peptide chemistry, synthesis/functionalisation and advanced biomolecular characterisation; optimisation of chemical stability and delivery approaches (including peptide-based hydrogels/nanosystems where fit for purpose); input from existing multidisciplinary antimicrobial-peptide and nanocarrier research. **Dr Greta Bergamaschi — CNR Institute of Chemical Sciences and Technologies "Giulio Natta" (SCITEC), Milan, Italy** Advanced peptide engineering, functional peptide design, self-assembling peptide systems and supramolecular hydrogels. Proposed contribution to structure–property relationship studies, physicochemical characterisation, peptide-based biomaterials and exploratory delivery platforms for bioactive compounds. Support for collaborative research, molecular optimisation and translational development. **Prof Valentina Mittova — Scientific-Research Institute of Experimental and Clinical Medicine, University Geomedi, Tbilisi, Georgia** Biological co-evaluation of antibacterial activity, cellular/biochemical effects and safety-oriented assays; linkage to experimental-medicine infrastructure, biological data interpretation and training. Clinical CRAB testing, animal infection studies and regulatory studies require facility-specific confirmation.

Profile of partner sought

Role	☒ technology development	☒ research	☒ training
	☒ dissemination	☒ demonstration	☒ other: Coordinator, Clinical translation / regulatory development
Country /region	☒ EU Member States and Horizon Europe associated countries, with priority to clinical/translational AMR groups.		

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Expertise required	We are looking for a Coordinator/consortium to join. At the same time were building the consortium and are looking for the following expertise: **Clinical antimicrobial development programme / candidate owner.** A credible existing therapeutic candidate targeting the selected priority pathogen with nonclinical package, documented WHO innovation criterion, IP/right-to-use position and an executable first-in-human/clinical development pathway. **Clinical microbiology / infectious diseases.** Access to phenotypically and genomically characterised isolates of the selected priority pathogen, standard susceptibility and time-kill assays, animal infection models, clinical sites and patient recruitment capability. **GMP manufacturing and CMC.** GMP batch production, analytical release, impurity and stability studies, scale-up and manufacturing/quality documentation for clinical trial material. **Regulatory, toxicology and clinical trial expertise.** GLP-relevant toxicology, ethics, regulatory advice, clinical operations, pharmacokinetics/pharmacodynamics, clinical safety and efficacy endpoints, and access to appropriate regulators. **Mechanism/formulation specialists.** Membrane-level studies, resistance emergence and cross-resistance testing; drug-delivery, formulation and exposure optimisation where translationally justified.

I agree with the publication of my contact data: ☒ YES ☐ NO