

# Hypothetical Impact Responses Worked Examples by Funder

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*With UNSDG Alignment, Targets, and Indicators*

A Resource from the [Research Engagement & Impact Office](#)  
Technological University Dublin  
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**HYPOTHETICAL EXAMPLES FOR REVIEW AND TRAINING PURPOSES ONLY**  
*Based on illustrative antimicrobial resistance and biofilm research scenarios*

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## About This Document

This document provides hypothetical worked examples of impact responses for each of the major European and Irish grant funders. Each example is based on an illustrative antimicrobial resistance (AMR) and biofilm research scenario, designed to show how the same underlying research can be framed differently for different funders.

Each example respects approximate common word or page limits for the relevant scheme. UNSDG alignment is woven throughout, referencing specific targets and indicators rather than goals alone. The examples are not designed to be perfect.

**The hypothetical project:** An investigation into antibiotic metabolites, biofilm formation, and resistance mechanisms in *Pseudomonas aeruginosa* and *Staphylococcus aureus*, using Minimum Inhibitory Concentration (MIC) testing, disc diffusion assays, EUCAST breakpoint interpretation, proteomic analysis (LC-MS/MS), and extracellular vesicle (EV) characterisation. The research is conducted across two TU Dublin campuses (Tallaght and Grangegorman) with clinical collaborators.

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## 1. Horizon Europe (RIA) — Section 2: Impact

*Typical allocation: 5–6 pages across sub-sections 2.1, 2.2, and 2.3 within a 40-page proposal.*

### 2.1 Pathways Towards Impact

*Approx. 2–3 pages. The example below is condensed but illustrative of structure and tone.*

#### **HYPOTHETICAL RESPONSE**

Antimicrobial resistance (AMR) represents one of the most pressing global health threats of the twenty-first century. The WHO has estimated that bacterial AMR was directly responsible for 1.27 million deaths in 2019 and contributed to a further 4.95 million. The economic burden is projected to reach USD 100 trillion globally by 2050 if current trajectories continue unchecked. Within the European Union, AMR-associated infections account for approximately 35,000 deaths annually, with MRSA and multi-drug resistant *Pseudomonas aeruginosa* among the most clinically challenging pathogens.

This project directly addresses Expected Outcome 4 of the Cluster 1, Destination 3 work programme topic, which calls for “new approaches to combat antimicrobial resistance through innovative diagnostics, therapeutic strategies, and preventive measures.” Our results will contribute to this outcome through three credible and interconnected pathways:

**Pathway 1 — Scientific Impact:** The proteomic characterisation of biofilm-associated resistance mechanisms in *P. aeruginosa* and *S. aureus* will generate the first comprehensive catalogue of differentially expressed proteins during pellicle versus planktonic growth. This dataset, deposited in the ProteomeXchange repository under FAIR principles, will serve as a foundational resource for the AMR research community, enabling targeted identification of novel therapeutic vulnerabilities. We anticipate a minimum of 8 peer-reviewed publications in journals such as *Biofilm*, the *Journal of Antimicrobial Chemotherapy*, and *Proteomics*, with open-access publication guaranteed through the Rights Retention Strategy.

**Pathway 2 — Societal Impact:** By elucidating the role of bacterial extracellular vesicles (BEVs) in horizontal gene transfer and resistance dissemination, this project will generate evidence directly

relevant to clinical infection prevention and control (IPC) policy. We will engage with the HSE’s Antimicrobial Resistance and Infection Control (AMRIC) team and HIQA to translate proteomic findings into actionable recommendations for surveillance protocols. A dedicated policy brief series, produced in collaboration with the Oireachtas Library and Research Service, will target Pre-Legislative Scrutiny processes relevant to antimicrobial stewardship legislation.

Pathway 3 — Economic Impact: The identification of novel biofilm disruption targets will be assessed for intellectual property potential through TU Dublin’s Technology Transfer Office, with an objective of filing at least one patent application by Month 36. Industry partners in the biopharmaceutical and diagnostics sectors (confirmed through letters of support from two SMEs) will participate in co-creation workshops to accelerate translational uptake. The project will contribute to Ireland’s positioning within the EU Pharmaceutical Strategy and Enterprise Ireland’s focus on the life sciences sector.

UNSDG Alignment: SDG 3 (Good Health and Well-Being), Target 3.d — “Strengthen the capacity of all countries for early warning, risk reduction and management of national and global health risks.” Indicator 3.d.2: Percentage of bloodstream infections due to selected antimicrobial-resistant organisms. This project will generate primary data on resistance profiles that directly informs this indicator at the national level through HSE EARS-Net reporting. Additionally, SDG 9 (Industry, Innovation and Infrastructure), Target 9.5: “Enhance scientific research, upgrade the technological capabilities of industrial sectors.” Indicator 9.5.1: Research and development expenditure as a proportion of GDP. SDG 17 (Partnerships for the Goals), Target 17.6: Knowledge sharing and cooperation for access to science, technology, and innovation.

## 2.2 Measures to Maximise Impact

*Approx. 2 pages.*

### **HYPOTHETICAL RESPONSE**

**Dissemination:** All peer-reviewed publications will be made immediately open access under CC-BY licensing, compliant with the Horizon Europe Open Access mandate. Proteomic datasets will be deposited in ProteomeXchange (PRIDE repository) within 6 months of generation. A project website, maintained for a minimum of 5 years post-project, will host lay summaries, infographics, and a searchable database of resistance-associated protein identifiers. We will present findings at a minimum of 6 international conferences, including ECCMID, ASM Microbe, and FEMS, and at national fora including the Royal Academy of Medicine in Ireland annual meeting.

**Exploitation:** A dedicated Exploitation Strategy Board, including representation from the two SME partners, the TU Dublin TTO, and an external IP advisor, will convene quarterly from Month 6. Exploitation routes include: (a) licensing of novel biofilm disruption targets to diagnostics companies; (b) development of a prototype BEV-based diagnostic assay (TRL advancement from 2 to 4 during the project); and (c) integration of proteomic resistance signatures into existing AMR surveillance platforms (AMRcloud, EARS-Net).

**Communication:** A comprehensive communication plan targets three audiences. For the scientific community: conference presentations, preprints, and Twitter/X threads summarising key findings. For policymakers: a series of four policy briefs co-authored with the ESRI, distributed through the Oireachtas Library and Research Service and European Parliamentary Research Service. For the general public: a podcast series (6 episodes) produced in partnership with TU Dublin’s Communications Office, school engagement workshops aligned with the Science Foundation Ireland Discover programme, and media engagement coordinated through a dedicated press strategy. All communication materials will be produced in accessible formats and available in both English and Irish.

**Intellectual Property:** Freedom-to-operate analyses will be conducted by Month 12 for all potential therapeutic targets. The consortium has agreed a Joint Ownership Agreement (Annex to the Consortium

Agreement) that provides each partner with non-exclusive access for research purposes while protecting commercial exploitation rights.

## 2.3 Summary Table

Now optional under the 2026–2027 template but recommended.

Project Result	Expected Outcome	Expected Impact	Indicator / Evidence
Comprehensive proteomic catalogue of biofilm resistance	AMR research community adopts catalogue as reference dataset	Contribution to WHO priority pathogen research; new therapeutic targets validated	SDG 3.d.2; ProteomeXchange downloads; citation metrics
BEV characterisation methodology benchmarked	Adoption by 3+ European labs within 2 years post-project	Standardisation of EV isolation in clinical microbiology	SDG 9.5.1; protocol adoption; replication studies
Policy brief series on AMR surveillance	Uptake by HSE AMRIC team and HIQA	Strengthened national AMR surveillance aligned with EU AMR Action Plan	SDG 3.d.1; IHR capacity score; policy citation count
Patent filing on biofilm disruption target	Licensing agreement with diagnostics SME	New diagnostic/therapeutic product entering preclinical pipeline	SDG 9.b; patent filing; licensing revenue

## 2. ERC Starting Grant — Ground-breaking Nature and Potential Impact

Part B1, within 5-page extended synopsis. No standalone impact section. Impact is embedded in the narrative of ground-breaking nature. Approx. 1–1.5 pages within B1.

### HYPOTHETICAL RESPONSE

The biofilm state represents the dominant mode of bacterial existence in chronic infections, yet our understanding of how the biofilm proteome actively reconfigures to resist antibiotic challenge remains fragmentary. Current models treat biofilm tolerance as a passive consequence of reduced antibiotic penetration. This project challenges that paradigm fundamentally: we hypothesise that pellicle-forming bacteria actively deploy extracellular vesicle (EV)-mediated proteomic cargo to coordinate community-level resistance in real time.

If confirmed, this will overturn the prevailing “slow diffusion” model of biofilm tolerance and establish a new mechanistic framework with three transformative implications. First, it will redefine how we conceptualise resistance transfer, demonstrating that EVs are not passive debris but functional units of adaptive resistance. Second, it will open an entirely new class of therapeutic targets — the cargo-loading and vesicle biogenesis machinery — that current antibiotic development pipelines do not address. Third, it will provide a conceptual bridge between microbiology and the rapidly expanding field of eukaryotic EV biology, enabling cross-disciplinary fertilisation that neither field can achieve in isolation.

No existing study has combined quantitative proteomics of matched planktonic/pellicle growth conditions with single-vesicle characterisation using nanoparticle tracking analysis and flow cytometry in clinically relevant ESKAPE pathogens. The methodological integration proposed here — coupling LC-MS/MS-based discovery proteomics with functional biofilm assays and EV phenotyping — represents a

step-change in how the field approaches biofilm biology. The outputs will not merely add data points to existing knowledge; they will restructure the questions that the AMR field asks about chronic infection.

Note on UNSDG framing for ERC: The ERC does not require or reward explicit UNSDG mapping. Including it would signal misunderstanding of the evaluation criteria. The focus must remain on advancing the frontier of knowledge. Broader societal relevance can be mentioned briefly but should not dominate. The above example deliberately avoids UNSDG language and instead emphasises paradigm shift, novelty, and field-level transformation.

### 3. MSCA Postdoctoral Fellowship — Section 2: Impact

Approximately 2 pages within a 10-page Part B1. Impact carries 30% weighting.

#### 2.1 Career Development and Employability

Typical allocation: approx. 0.5–0.75 pages

##### **HYPOTHETICAL RESPONSE**

This fellowship represents a decisive transition point from supervised postdoctoral researcher to independent investigator. My doctoral training (TU Dublin) provided expertise in classical microbiology techniques — MIC determination, disc diffusion, EUCAST breakpoint interpretation, and MDR classification. However, the proteomic and EV characterisation skills essential to my long-term research vision are not available at my current institution. The proposed mobility to [Host Institution] will address this gap directly.

Under the supervision of Prof. [Name], whose group pioneered the application of quantitative proteomics to clinical biofilm isolates, I will acquire hands-on expertise in label-free quantification workflows using Proteome Discoverer, data-independent acquisition (DIA) mass spectrometry, and single-vesicle flow cytometric analysis on the CytoFLEX S platform. These competencies will allow me to establish, upon return, a nationally unique research niche at the intersection of clinical microbiology and extracellular vesicle biology — a combination that currently has no dedicated research group in Ireland.

The fellowship's intersectoral dimension is strengthened by a planned 3-month secondment to [Industry Partner], a diagnostics SME developing rapid AMR susceptibility testing platforms. This placement will provide direct experience of translating fundamental research into commercial products, an essential competency for securing future ERC or Wellcome funding and for contributing to Ireland's innovation ecosystem. By the conclusion of this fellowship, I will be competitively positioned to apply for a Research Ireland Investigators Programme award or equivalent tenure-track position.

#### 2.2 Dissemination, Exploitation, and Communication

Typical allocation: approx. 0.75–1 page

##### **HYPOTHETICAL RESPONSE**

Dissemination: I will publish a minimum of 4 peer-reviewed articles in Q1 journals (target venues: Biofilm, mBio, Journal of Proteome Research). All publications will be immediately open access under CC-BY, in compliance with Horizon Europe and Research Ireland open access mandates. I will present findings at ECCMID (annual), the MSCA-funded researchers' conference, and the All-Island Microbiology Research Network annual symposium. All proteomic datasets will be deposited in the PRIDE repository within 3 months of manuscript acceptance, with comprehensive metadata to enable reuse.

**Exploitation:** The characterisation of BEV cargo proteins as potential diagnostic biomarkers has clear translational potential. Working with [Industry Partner] during my secondment, I will conduct a preliminary freedom-to-operate analysis for the most promising protein targets. Any IP generated will be managed through the host institution's TTO in accordance with the Consortium Agreement. I will produce a Technology Opportunity Brief for Enterprise Ireland's commercialisation office by Month 18.

**Communication:** I will deliver 4 public engagement events during the fellowship: two school workshops targeting Transition Year students (aligned with SFI Discover), one public lecture at the host institution's Science Week programme, and one Pint of Science session. I will maintain a dedicated project blog (monthly updates) and an active social media presence on Twitter/X and LinkedIn, using the #MSCAFellows hashtag. A 3-minute video abstract for each publication will be produced and shared via institutional channels and YouTube.

## 2.3 Contribution to Expected Impacts

Typical allocation: approx. 0.5 pages

### HYPOTHETICAL RESPONSE

**Scientific:** This project will generate new mechanistic understanding of EV-mediated resistance transfer in biofilms — a phenomenon currently understudied despite its potential clinical significance. The validated proteomic workflow for matched planktonic/pellicle EV comparison will be openly available as a reproducible protocol (deposited on protocols.io), enabling adoption by other AMR research groups.

**Societal:** AMR is estimated to cause 700,000 deaths annually worldwide, with projections suggesting 10 million by 2050 under current trends. By identifying new intervention points in the biofilm resistance cascade, this project contributes directly to SDG Target 3.d (strengthening capacity for management of national and global health risks) and the EU AMR One Health Action Plan. The project's public engagement activities will contribute to improved scientific literacy around antibiotic stewardship among secondary school students and the general public.

**Economic:** The identification of novel biomarker candidates for rapid AMR diagnostics has commercial potential estimated by Transparency Market Research at USD 5.9 billion globally by 2031 for the AMR diagnostics market. The secondment to [Industry Partner] will accelerate translation timelines and contribute to Ireland's objective of expanding its share of the global diagnostics market.

UNSDG Alignment: SDG 3, Target 3.d, Indicator 3.d.2 (Percentage of bloodstream infections due to selected AMR organisms). SDG 4 (Quality Education), Target 4.7: Ensure learners acquire knowledge to promote sustainable development — via the school engagement workshops. SDG 9, Target 9.5, Indicator 9.5.1 (R&D expenditure) and 9.5.2 (Researchers per million inhabitants).

## 4. Taighde Éireann (Formerly SFI) Frontiers for the Future — Impact Statement

Maximum 2 pages. Written in lay, non-technical language. Reviewed by impact-specific reviewers (industry R&D directors, TTO professionals, investors).

### HYPOTHETICAL RESPONSE

Antibiotic resistance is one of the most significant threats to human health globally and is recognised by the WHO as a top-ten global public health threat. In Ireland, the HSE's national AMR surveillance data show increasing rates of multi-drug resistant infections, particularly in intensive care settings. This

project has the potential to deliver impact across several dimensions directly relevant to Ireland's economy and society.

**Impact on science, technology, and industry in Ireland:** This research will produce the first comprehensive proteomic map of biofilm-associated resistance in two of the WHO's "critical" and "high" priority pathogens. This foundational dataset will position TU Dublin and Ireland's research ecosystem at the forefront of an emerging field — the biology of bacterial extracellular vesicles in chronic infection. By establishing this research niche nationally, the project will strengthen Ireland's capacity to compete for large-scale European funding (Horizon Europe Cluster 1 calls) in subsequent cycles. The research directly supports Research Ireland's strategic priority of building research capacity in areas aligned with Ireland's Smart Specialisation Strategy, specifically in the health and life sciences domain.

**Industry collaboration and routes to commercialisation:** Two Irish SMEs operating in the diagnostics and biopharmaceutical sectors have confirmed their interest in the project's outcomes through letters of support. [Company A], based in Dublin, develops rapid antimicrobial susceptibility testing platforms and has identified our EV-derived biomarker work as potentially relevant to their next-generation product line. [Company B], a Galway-based biotech company, has expressed interest in exploring the biofilm disruption targets for therapeutic development. We will work with TU Dublin's Technology Transfer Office to conduct IP assessments at Months 12 and 24, with a target of filing one provisional patent application by Month 36. The project will also engage with Enterprise Ireland's Commercialisation Fund as a potential pathway for follow-on translational funding.

**Impact on education and training:** The project will directly train two PhD students and one postdoctoral researcher in advanced proteomic techniques, flow cytometry, and biofilm biology — skills that are in demand across Ireland's biopharmaceutical sector. Both PhD students will undertake industry placements of 3 months each, ensuring that the training programme produces graduates with both academic and industry-relevant competencies. One ARISE summer internship student will be recruited annually to broaden participation in research. The project team will deliver annual workshops at the MiCRA Biodiagnostics Technology Gateway, disseminating proteomic methods to the wider SME community in the medtech and AgriFood sectors.

**Broader societal impact:** The project's findings will be communicated to policymakers through a dedicated policy brief series targeting the Oireachtas Joint Committee on Health and the HSE's AMRIC division. We will contribute data to Ireland's national AMR action plan (iNAP2) monitoring framework. Public engagement activities will include a podcast episode on antibiotic resistance produced in partnership with TU Dublin Communications, and participation in Science Week and SFI Discover events at two Dublin secondary schools per year.

**Timeframe:** Short-term (during project, Years 1–4): Foundational proteomic datasets published and deposited; methodology adopted by at least one other Irish research group; policy briefs distributed to HSE and Oireachtas. Medium-term (Years 4–7): IP assessment completed and patent filed if warranted; industry partner commences preclinical evaluation of lead biofilm disruption target; trained researchers placed in industry and academic positions. Long-term (Years 7–10+): Diagnostic or therapeutic product enters clinical pipeline; project outputs integrated into national AMR surveillance protocols; methodology becomes standard practice in Irish clinical microbiology laboratories.

**UNSDG Alignment:** SDG 3, Target 3.d, Indicator 3.d.2 (Percentage of bloodstream infections due to selected AMR organisms). Target 3.b: Support R&D of vaccines and medicines for communicable and non-communicable diseases. SDG 4, Target 4.b: Expand scholarships for higher education (via PhD studentships). SDG 8, Target 8.2: Achieve higher levels of economic productivity through diversification, technological upgrading and innovation. SDG 9, Target 9.5: Enhance scientific research and upgrade technological capabilities. SDG 12, Target 12.4: Achieve the environmentally sound

management of chemicals (relevant to antibiotic residues in the environment under a One Health framing).

## 5. Taighde Éireann (Formerly IRC) Government of Ireland Postgraduate Scholarship — Impact Elements

Impact is distributed across the abstract (300 words), research description (500 words), and dissemination sections. There is no standalone impact section.

### Abstract (300 words max — final sentence addressing impact)

#### **HYPOTHETICAL EXTRACT (final 2 sentences of abstract)**

The outcomes of this research will contribute to the development of novel diagnostic biomarkers for biofilm-associated AMR infections, with direct relevance to national antimicrobial stewardship policy. These findings will advance fundamental understanding of bacterial extracellular vesicle biology while supporting Ireland's capacity to address one of the most pressing global health challenges of our time.

Word count for this extract: ~50 words within the 300-word abstract

### Dissemination Plan

#### **HYPOTHETICAL RESPONSE**

Research outputs will be disseminated through publication in peer-reviewed open-access journals (target: 2 first-author publications during the scholarship period), presentation at national conferences (Infectious Diseases Society of Ireland annual meeting, Irish Society for Microbiology), and deposition of proteomic datasets in the PRIDE repository under FAIR principles. Broader communication activities will include a lay summary blog post for each publication, shared through TU Dublin's institutional social media channels and the Research Ireland #LoveIrishResearch campaign. The applicant will participate in at least one public engagement event annually, including Science Week activities and TU Dublin's postgraduate research showcase. A short video abstract (3 minutes) will be produced for each publication and made available on the institutional repository and YouTube.

Word count: ~115 words

UNSDG Alignment (brief, appropriate to the scale of a PG scholarship): SDG 3, Target 3.d. SDG 4, Target 4.7 (via public engagement activities).

## 6. HEA Impact Assessment Case Study

Template: approx. 1,000 words total. Retrospective — describes impact that has already occurred. Assessed on significance and reach (REF-derived criteria).

### Summary of Impact (100 words)

#### **HYPOTHETICAL RESPONSE**

Research at TU Dublin on antimicrobial resistance mechanisms in biofilm-forming bacteria has directly informed national AMR surveillance policy and generated new diagnostic capabilities for the Irish health system. Proteomic analysis of *Pseudomonas aeruginosa* and *Staphylococcus aureus* biofilms led to the identification of three novel resistance-associated protein biomarkers, one of which has been adopted

into a commercial rapid diagnostic platform by an Irish SME. The research has also contributed to revised HSE infection prevention guidance and informed deliberations at the Oireachtas Joint Committee on Health regarding antimicrobial stewardship legislation.

**Word count: 89 words**

### Details of the Impact (500 words)

#### **HYPOTHETICAL RESPONSE**

The research programme, conducted between 2022 and 2026, produced the first comprehensive proteomic characterisation of biofilm-associated resistance in *P. aeruginosa* clinical isolates from Irish hospitals. This dataset, published in *Biofilm* (2024) and the *Journal of Proteome Research* (2025), identified 47 differentially expressed proteins in pellicle versus planktonic growth, including three previously uncharacterised proteins with diagnostic potential.

**Impact on clinical practice and policy:** In 2025, the research team presented findings to the HSE's Antimicrobial Resistance and Infection Control (AMRIC) division, leading to a formal recommendation to incorporate biofilm-specific resistance markers into the national AMR surveillance protocol under iNAP2. The PI was subsequently invited to join the AMRIC Clinical Advisory Group, providing ongoing scientific input to national IPC policy. A policy brief produced in collaboration with the Oireachtas Library and Research Service was cited during the Joint Committee on Health's deliberations on the Health (Antimicrobial Stewardship) Bill 2025. Committee member Senator [Name] referenced the TU Dublin research as evidence supporting the case for mandatory antibiotic stewardship programmes in long-term care facilities.

**Impact on industry and commercialisation:** One of the three identified biomarker candidates was licensed (non-exclusive) to [Company A], a Dublin-based diagnostics SME, in 2025. The company has since incorporated this biomarker into the validation programme for its next-generation rapid AMR susceptibility testing platform, with projected market entry in 2027. This collaboration was facilitated through TU Dublin's Technology Transfer Office and supported by Enterprise Ireland Commercialisation Fund Phase 1 funding. The licensing agreement has generated income for the university and is projected to support two industry R&D positions over the next three years.

**Impact on public understanding:** The research team's public engagement activities reached an estimated 2,400 secondary school students across Dublin through Science Week workshops (2023–2025) and a dedicated podcast episode that received over 3,200 downloads within its first six months. Media coverage included features on RTE Radio 1 (Drivetime, March 2025) and in *The Irish Times* health supplement.

**Reach:** The impact extends nationally (HSE policy, Oireachtas proceedings, national media) and internationally (proteomic datasets downloaded by researchers in 14 countries; methodology adopted by two European AMR research consortia). The licensing agreement has commercial implications for the diagnostics sector across the EU, with the SME partner targeting the UK, German, and French markets for product launch.

**Significance:** The research has demonstrably contributed to a change in national surveillance practice (HSE AMRIC recommendation), informed legislative proceedings (Oireachtas citation), and enabled commercial product development (licensing to an Irish SME). These represent concrete, evidenced changes in policy, practice, and the economy attributable to TU Dublin research.

**Word count: ~380 words (within indicative 500-word limit)**

UNSDG Alignment: SDG 3, Target 3.d, Indicator 3.d.1 (IHR capacity and health emergency preparedness) and Indicator 3.d.2 (bloodstream infections due to AMR organisms). SDG 9, Target 9.5. SDG 17, Target 17.6 (knowledge sharing). Note: For HEA IACS purposes, UNSDG alignment

strengthens the case but is not an evaluation criterion per se. The focus must remain on evidenced significance and reach.

## 7. Wellcome Discovery Award — Research Vision and Applicant Questions

*No traditional impact section. Impact is inferred from the ambition and transformative potential of the research vision. Specific questions have defined word limits.*

### Research Proposal Summary

*No formal word limit specified, but brevity is expected.*

#### **HYPOTHETICAL RESPONSE**

We propose to fundamentally redefine the role of bacterial extracellular vesicles in biofilm-associated antimicrobial resistance. Current understanding treats biofilm tolerance as a passive physical barrier to antibiotic diffusion. Our preliminary data suggest a radically different mechanism: that biofilm-dwelling bacteria actively deploy vesicles carrying a coordinated proteomic payload that reconfigures the resistance landscape of the entire community. This programme will determine whether EVs function as the primary communication system driving collective resistance in clinically critical pathogens, opening entirely new intervention strategies that circumvent conventional resistance mechanisms.

### How have you contributed to the development of others? (300 words max)

#### **HYPOTHETICAL RESPONSE**

I have supervised 6 PhD students to completion and 4 postdoctoral researchers over the past decade. Three of my former PhD students hold permanent academic positions (UCD, University of Galway, and RCSI), while two have moved into senior roles in industry (GSK and a Dublin-based diagnostics SME). I established a structured mentoring programme within my research group that pairs early-career researchers with both academic and industry mentors, ensuring that career development is not confined to the traditional academic pathway. Two of my former postdoctoral researchers have secured independent funding (one Research Ireland Investigators award and one MSCA Postdoctoral Fellowship), and I continue to serve as an informal mentor to both.

Beyond my immediate group, I co-founded a cross-institutional AMR early-career researcher network connecting TU Dublin, UCD, and Trinity College Dublin, which now has 45 active members and runs quarterly skills workshops and an annual symposium. I served as external examiner for 3 PhD theses at UK institutions and sit on the editorial board of *Biofilm*, where I mentor early-career reviewers through a paired review scheme. Within TU Dublin, I designed and deliver a graduate training module on research impact and public engagement, completed annually by approximately 30 PhD students.

**Word count: ~195 words (well within 300-word limit)**

### Research environment (300 words max)

#### **HYPOTHETICAL RESPONSE**

This programme aligns with TU Dublin's strategic priority of building research excellence in health sciences and positions the university as a nationally distinctive centre for AMR and biofilm research. TU Dublin's Research and Innovation Strategy 2024–2028 explicitly identifies antimicrobial resistance as a priority area, and the institution has invested in dedicated proteomics infrastructure including an Orbitrap mass spectrometer, Nanosight NTA system, and CytoFLEX S flow cytometer across its Tallaght and Grangegorman campuses. The MiCRA Bidiagnostics Technology Gateway, co-located at TU Dublin,

provides a direct pathway to industry engagement and translational activity. My group benefits from established collaborations with the HSE AMRIC team, HIQA, and two clinical microbiology departments at Tallaght University Hospital and the Mater Misericordiae University Hospital.

**Word count: ~125 words (concise and within limit)**

UNSDG note for Wellcome: Wellcome does not request or prioritise UNSDG alignment. Including explicit UNSDG mapping in a Discovery Award application would be unusual and could signal a misunderstanding of the funder's priorities. The focus must be on transformative potential for understanding human health. If UNSDG alignment is mentioned at all, it should be incidental, not structural.

## 8. Enterprise Ireland — Commercialisation Fund Impact Summary

*Typically 1–2 pages. Heavily market-oriented. Reviewed by commercialisation and industry professionals.*

### **HYPOTHETICAL RESPONSE**

The global antimicrobial resistance diagnostics market is valued at USD 4.1 billion (2024) and projected to reach USD 5.9 billion by 2031, growing at a CAGR of 5.2% (Transparency Market Research, 2024). The European market accounts for approximately 28% of global share, driven by increasing regulatory pressure for rapid AMR susceptibility testing and the EU's Pharmaceutical Strategy mandate for innovation in anti-infective diagnostics.

This project addresses a clear gap in the current diagnostics landscape: no commercially available rapid test incorporates biofilm-specific resistance markers. Our technology — a panel of three proteomic biomarkers that distinguish biofilm-associated resistance from planktonic susceptibility profiles — has been validated against 120 clinical isolates from two Irish hospitals (sensitivity: 91%; specificity: 87%). The biomarker panel can be integrated into existing immunoassay or mass spectrometry-based diagnostic platforms, reducing the requirement for de novo hardware development.

The target customers are clinical microbiology laboratories in acute hospital settings, initially in Ireland (43 acute public hospitals) and subsequently across the EU. Our commercialisation route is licensing to established diagnostics companies rather than direct product development. We have a confirmed letter of intent from [Company A] (Dublin), who will integrate the biomarker panel into their existing rapid susceptibility testing platform under a non-exclusive license. Projected licensing revenue is estimated at €250,000 over the first 3 years post-commercialisation, with potential for additional licensing agreements in the UK and German markets.

**Job creation:** The commercialisation activities will support 2 FTE R&D positions at [Company A] and 1 FTE at TU Dublin's Technology Transfer Office. Successful market entry by the licensee is projected to create 5–10 additional positions in manufacturing and quality assurance. **Export potential:** [Company A] currently exports to 6 EU markets and the UK. Integration of the TU Dublin biomarker panel is expected to strengthen their competitive position and contribute to Enterprise Ireland's target of increasing medtech export revenue.

UNSDG Alignment: SDG 3, Target 3.d, Indicator 3.d.2 (AMR). SDG 8, Target 8.2 (economic productivity through innovation), Target 8.3 (decent work and entrepreneurship). SDG 9, Target 9.5 (scientific research), Target 9.b (support domestic technology development and industrial diversification). For Enterprise Ireland, UNSDG alignment is increasingly valued but remains secondary to the commercial opportunity, market validation, and job creation potential.

## Notes for Use

These examples are deliberately illustrative and contain simplifications. Consider the following when reviewing:

- The same underlying research has been framed very differently for each funder. The ERC version emphasises paradigm shift; the Taighde Éireann version emphasises national economic benefit; the Enterprise Ireland version leads with market size.
- UNSDG alignment has been included at varying depth depending on the funder. For the ERC and Wellcome, explicit UNSDG mapping would be inappropriate or counterproductive. For Horizon Europe and SFI, it strengthens the narrative.
- The level of specificity in targets and indicators matters. Citing “SDG 3” alone adds little value. Citing “Target 3.d, Indicator 3.d.2” demonstrates that the researcher has actually engaged with the framework.
- Word limits vary enormously. The Taighde Éireann/IRC postgraduate abstract allows 300 words total; the Horizon Europe impact section runs to 5–6 pages. The same content must be radically compressed or expanded depending on the scheme.
- The HEA IACS example is retrospective. All other examples are prospective. This fundamental difference is frequently misunderstood by researchers preparing case studies for the first time. The Strategic Development Office of TU Dublin manages these submissions.
- Policy impact claims should be specific and verifiable. Saying “our research informed policy” is weak. Saying “Our policy brief was cited during the Joint Committee on Health’s deliberations on the Health (Antimicrobial Stewardship) Bill 2025” is strong.
- Industry impact claims benefit from named partners and quantified projections, even at the application stage. Vague references to “the diagnostics sector” are less convincing than naming specific companies and citing market valuations.
- These can also be used for training and discussion purposes.

*For support with impact planning, or to book a one-to-one session with the Research Impact Lead, contact the Research Engagement & Impact Office at [engagementandimpact@tudublin.ie](mailto:engagementandimpact@tudublin.ie)*