| General Project Information | |
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| **Project Title** | **Development of Novel Methods for the Toxicity Assessment of Multi-component Chemical Mixtures to Humans and the Ecosystem(Tomixx)** |
| **Project Code** | PENEK/0609/24 |

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| **Summary** | The release of Active Pharmaceutical Ingredients (APIs) to the environment is an issue of increasing importance which takes place for many years now. This happens through the Urban Wastewater Treatment Plants effluents' discharges in which multi-component mixtures (M-CM) (parent compounds, metabolites and transformation products) of APIs exist. Because the importance of this diffuse pollution to the aquatic environment is now recognized, the European Medicines Agency has recently published a guideline on the environmental risk assessment of APIs for human use [10]. Nevertheless, the number of studies dealing with the effects of APIs residues on aquatic organisms and risk assessment is still limited and scarce, particularly regarding long-term studies and only very few studies have observed the effects of mixtures [25, 8]. This issue constitutes one of the major research gaps in the specific scientific field. It is important to note here that in Cyprus 19 APIs have already been detected in treated wastewater effluents. [21].<br>Firstly, this research project aims to achieve an integrated impact assessment of APIs to humans and the environment. The impact assessment will be performed to a selection of APIs present in Cyprus effluents and their phototransformation products (PTP). The effects on the environment will be assessed using a battery assay of relevant aquatic organisms from the three trophic levels (producer, consumer and decomposer). Acute and chronic effects as well as single and mixtures effects will be studied. The effects on humans will be evaluated in a cellular scale by assessing mutagenicity and by implementing a novel cost-effective cytotoxity-estrogenicity assay that will be developed in the context of this research project. Effects on humans will also be studied in a molecular scale by developing a novel microarray based method. A true interdisciplinary top quality research team will collaborate during the implementation of this original research project. Secondly, "Tomixx" targets to increase knowledge, not only of the academic institutes and especially of the YR, but also of governmental and private sector regarding the thematic area of xenobiotics. Technical expertise gained through this project will serve to better implementation of European legislation and to better protection of human and environmental health with the development of water reuse quality criteria. Thirdly, environmental awareness and participation of the public in general, will also be encouraged through this project for a better handling and disposal of APIs. Lastly, this research project targets at enhancing the efforts made by the 'green chemistry sector' by providing new insight relevant to existing APIs in regard to their environmental potency, the ultimate objective being the replacement of drugs with adverse environmental effects.<br>The research team consists of 3 partner organisations and a total of 8 researchers. The implementation plan includes 8 WPs and its duration is 24 months. The roles and responsibilities for each WP are distinctively attributed to partners in order to facilitate the smooth implementation and a communication scheme along with a decision making process are included. |

| Funding | |
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| **Funding Agency** | Research Promotion Foundation |
| **Framework** | 2009-2010 |
| **Programme** | PENEK |
| **Action** | PENEK |

| Internal Coordination | | | | | | |
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| **Project Submitted Under** | University of Nicosia Research Foundation (UNRF) | | | | | |
| **Role in Project** | Partner | | | | | |
| **Partner Research Coordinator (PRC)** | Dr. Kyriacos Felekkis | | | | | |
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| External Coordination | | | | | | |
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| **Host Organisation** | University of Cyprus | | | | | |
| **Project Coordinator (PC)** | Despo Fatta-Kassinos | | | | | |
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| Partners | | | | |
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| **Partner No.** | **Organisation** | **Country** | **Contact Person** | **Contact Details** |
| **1** | University of Nicosia Research Foundation | Cyprus | Kyriacos Felekkis | felekkis.k@unic.ac.cy |
| **2** | University Heidelberg | Germany | | |

| Schedule | | | |
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| **Year Awarded** | **Duration (in months)** | **Start Date** | **Expected End Date** |
| 2010 | 24 | 01/11/2010 | 31/10/2012 |

| Budget | | | |
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| | **%** | **Euro** | |
| **Funding Agency Contribution to UNRF** | 0 | 0 | |
| **Total Project Budget** | | **69,936** | |

| Dissemination | |
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| **Funding Website** | www.research.org.cy |
| **Project Website** | |

The Project **PENEK/0609/24** is co-financed by the European Regional Development Fund and the Republic of Cyprus through the Research Promotion Foundation.