Fate and effects of cytostatic pharmaceuticals in the environment and the identification of biomarkers for and improved risk assessment on environmental exposure

From 2011-01-01 to 2014-12-31, closed project

Objective

CytoThreat addresses the need to assess the risks of pharmaceuticals released in the environment, focusing on cytostatic drugs because they are highly hazardous compounds due to their genotoxic properties which may cause unexpected long term effects. Their release in the environment may lead to systemic ecological effects and increased cancer incidence, reduced fertility and malformations in the offspring in humans. The occurrence, distribution and fate of selected widely used cytostatics in different aquatic matrices, their acute and chronic toxicity and impact on the stability of the genetic material in a variety of aquatic organisms representing different trophic levels is addressed to provide data sets necessary for scientifically based risk assessment. Special emphasis is put on the combined effects of environmentally relevant mixtures. A combination of state-of-the art analytical chemistry, in vivo and in vitro systems, and ‘OMICS’ technologies is applied. In vivo studies with zebrafish models aim at identifying linkages between the genomic profiles, exposure conditions and adverse effects in vertebrates to identify molecular biomarkers for adverse effects of specific groups of cytostatics to be used as diagnostic markers and for predicting synergistic effects of combined exposures. Comparative in vitro genotoxicity and transcriptomic studies with zebrafish and human derived cells will provide additional information for the extrapolation of toxicological data to humans. Comparisons with the hazardous effects of other groups of pharmaceuticals will provide knowledge on the magnitude of the problem. CytoThreat will generate new knowledge on environmental and health risks of cytostatics and provide objective arguments for recommendations and regulations. Partners form 5 member states and 2 associated countries with complementary expertise in analytical chemistry, aquatic and genetic toxicology, and genomics and bioinformatics are involved.

Related information

Final Report Summary - CYTOTHREAT (Fate and effects of cytostatic pharmaceuticals in the environment and the identification of biomarkers for and improved risk assessment on environmental exposure)
Coordinator

NACIONALNI INSTITUT ZA BIOLOGIJO
VECNA POT 111
1000 LJUBLJANA
Slovenia

EU contribution: EUR 609 334,65

Activity type: Research Organisations

Administrative contact: Potocnik Franc
Tel.: +38659232704
Fax: +38612412980

Contact the organisation

Participants

INSTITUT JOZEF STEFAN
Jamova 39
1000 LJUBLJANA
Slovenia

EU contribution: EUR 407 730

Activity type: Research Organisations

Administrative contact: Jadran Lenarcic
Tel.: +38614773513
Fax: +38614773906

Contact the organisation

MEDIZINISCHE UNIVERSITAET WIEN
SPITALGASSE 23
1090 WIEN
Austria

EU contribution: EUR 292 867,20

Activity type: Higher or Secondary Education Establishments

Administrative contact: Christoph Zielinski
Tel.: +431404004445
Fax: +431404006088

Contact the organisation
SZENT ISTVAN UNIVERSITY
PATER KAROLY UTCA 1
2100 GODOLLO
Hungary

EU contribution: EUR 224,334,40

Activity type: Higher or Secondary Education Establishments

Administrative contact: Béla Urbányi
Tel.: +36 28 522 000
Fax: +36 28 522 927

Contact the organisation

UNIVERSITA DEGLI STUDI DELLA CAMPANIA LUIGI VANVITELLI
VIALE ABRAMO LINCOLN 5
81100 CASERTA
Italy

EU contribution: EUR 288,563,20

Activity type: Higher or Secondary Education Establishments

Administrative contact: Marina Isidori
Tel.: +390823274565
Fax: +390823274571

Contact the organisation

AGENCIA ESTATAL CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS
CALLE SERRANO 117
28006 MADRID
Spain

EU contribution: EUR 419,018,25

Activity type: Research Organisations

Administrative contact: Eusebio Jiménez Arroyo
Tel.: +34 91 566 88 52
Fax: +34 91 566 89 13

Contact the organisation

Institut za medicinska istrazivanja i medicinu rada
Ksaverska 2
10000 Zagreb
Croatia

EU contribution: EUR 114,122,80

Activity type: Research Organisations

Administrative contact: Verica Garaj Vrhovac
Tel.: +38514673188
Fax: +38514673303

Contact the organisation
INSTITUT ZA MULTIDISCIPLINARNA ISTRAZIVANJA
KNEZA VISESLAVA 1
11030 BEOGRAD
Serbia

**Activity type:** Higher or Secondary Education Establishments

**Administrative contact:** Budimirka Trišić
Tel.: +381113058954
Fax: +381113055289
[Contact the organisation](#)

**EU contribution:** EUR 69
243,20

RR & CO. RAZISKAVE RAZVOJ IN PRENOS ZNANJA DOO
DUNAJSKA CESTA 20
1000 LJUBLJANA
Slovenia

**Activity type:** Private for-profit entities (excluding Higher or Secondary Education Establishments)

**Administrative contact:** Ilina Hristova
Tel.: +386014324201
Fax: +386014317148
[Contact the organisation](#)

**EU contribution:** EUR 157
745,60

Last updated on 2019-08-01
Retrieved on 2019-10-27

© European Union, 2019