



**ARRS**

JAVNA AGENCIJA ZA RAZISKOVALNO DEJAVNOST  
REPUBLIKE SLOVENIJE

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## Project

<b>Member of University of Ljubljana</b>	University of Ljubljana, Biotechnical Faculty
<b>Code</b>	<a href="#">J4-9299</a>
<b>Project</b>	Targeting <i>Campylobacter</i> adhesion in the fight against antimicrobial resistance
<b>Period</b>	1.7.2018 - 30.6.2021
<b>Range in 2018</b>	0.67 FTE
<b>Head</b>	Anja Klančnik
<b>Research activity</b>	4.02 Biotechnical sciences / Animal production
<b>Research Organisation Partners</b>	Institut "Jožef Stefan" (IJS)
	OMEGA svetovanje, inženiring, razvoj in raziskovanje d.o
	National institute of Biology (NIB)
<b>Co-financing Organisation</b>	/
<b>Abstract</b>	<i>Campylobacter</i> spp. cause food-borne illnesses worldwide due to contaminated food and cross-contamination. This is at least partly the consequence of <i>Campylobacter</i> resistance during the food-production chain, as modern food production facilitates emergence and spread of resistance through intensive use of antimicrobial agents and international trade in raw materials and food products. In addition, the incidence and prevalence of campylobacteriosis is still increasing, which is mainly associated with consumption of undercooked poultry meat products, and with outbreaks arising from contaminated water. <i>Campylobacter</i> adhesion and biofilm formation has major implications

	<p>in the food industry, where biofilms can create persistent sources of contamination while conferring survival benefits to <i>Campylobacter</i> through industrial processes and transmission to the next host. Novel strategies are needed to reduce bacterial contamination and to control <i>Campylobacter</i> in foods. In his project we will use <i>Campylobacter</i> as our model to develop novel strategies to combat contamination and infection, through targeting the mechanisms of action that are not sensitive to the ever-increasing repertoire of bacterial resistance mechanisms. The proposed project specifically addresses the issue of understanding the mechanisms by which <i>Campylobacter</i> adhere to surfaces, which is crucial for the application of novel antimicrobial strategies.</p>
<p><b>Researchers</b></p>	<p><a href="http://www.sicris.si/public/jqm/prj.aspx?lang=eng&amp;opdescr=search&amp;opt=2&amp;subopt=402&amp;code1=cmn&amp;code2=auto&amp;psize=1&amp;hits=1&amp;page=1&amp;count=&amp;id=17322&amp;slng=&amp;search_term=anja+klan%C4%8Dnik&amp;order_by=">http://www.sicris.si/public/jqm/prj.aspx?lang=eng&amp;opdescr=search&amp;opt=2&amp;subopt=402&amp;code1=cmn&amp;code2=auto&amp;psize=1&amp;hits=1&amp;page=1&amp;count=&amp;id=17322&amp;slng=&amp;search_term=anja+klan%C4%8Dnik&amp;order_by=</a></p>
<p><b>The phases of the project and their realization</b></p>	<p><b>WP1: Involvement of important <i>Campylobacter</i> cellular mechanisms in <i>Campylobacter</i> adherence</b>  Task 1.1: Adhesion of defined mutants in cellular mechanisms  Task 1.2: Mechanism of <i>Campylobacter</i> adhesion at the level of their morphology  Realisation in month of project: from 1 to 13 month</p> <p><b>WP2: New target molecules in the extracellular matrix that are important for <i>Campylobacter</i> adhesion</b>  Task 2.1. Using lectins to interfere with <i>Campylobacter</i> adhesion  Task 2.2. Analysis of protein targets in <i>Campylobacter</i> extracellular matrix  Realisation in month of project: from 6 to 17 month</p> <p><b>WP3: Mechanisms of <i>Campylobacter</i> adhesion at the level of the transcriptome</b>  Task 3.1. RNA-seq of adhered <i>Campylobacter</i> cells  Task 3.2. Statistical analysis of RNA-seq  Realisation in month of project: from 11 to 23 month</p> <p><b>WP4: Mechanisms of bacterial adhesion at the level of the proteome</b>  Task 4.1. Proteomic analysis of outer membrane proteins of <i>Campylobacter</i>  Task 4.2. Proteomic analysis of intracellular proteins of <i>Campylobacter</i>  Realisation in month of project: from 20 to 35 month</p> <p><b>WP5: Proposed strategies to target adhesion for reduction of <i>C. jejuni</i> contamination in the food chain</b>  Task 5.1 Integration of the data obtained from WP1 to WP4 and target conformation  Task 5.2. Proposed strategies to prevent adhesion  Realisation in month of project: from 14 to 356 month</p>

**Citations for bibliographic records**

<http://izumbib.izum.si/bibliografije/Y20181221120804-22491.html>