

## Research project RF-2010-2317095

### Assessing antibiotic resistance in nonpathogenic food-related bacteria: the impact on human gut microbiota

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Despite the importance of a continuous monitoring of antibiotic resistance spreading in order to acquire useful information to address effective therapeutic choices, the main objective of this proposal is not focused on counteract therapeutic failure due to antibiotics lack of effectiveness but, in broader terms on considering antibiotic resistance phenomenon for its impact on long term human microbiota equilibrium. The scientific community is increasingly showing interest in revealing the correlations between diet and health status.

In fact, worldwide dietetic recommendations are principally based on the evidence that an assorted, well-balanced, low fat diet, that includes different daily portions of vegetables and mainly vegetal proteins source, has shown to have a preventive significance toward non communicable diseases as cardiovascular diseases, diabetes and obesity among others.

However, these dietetic suggestions reflect only the nutritional point of view and essentially lack of any concern regarding the exposition to chemical and microbiological hazards including AR determinants through food ingestion. Our effort will be addressed to fill this gap by clarifying to what extent food of animal and vegetal origin can contribute to the establishment of AR bacteria populations in human gut.

Moreover, many researches have demonstrated to which extent human gut microflora composition may affect health status. Gut microbiota dynamics has also been linked to the nutritional status in terms of establishment of overweight or obesity. Nevertheless to our knowledge this is the first time that human gut microbial community is investigated focusing on the impact of AR determinants in modifying their ecological dynamics.

The impact of antibiotics use in veterinary medicine on the development of AR phenomena has been widely investigated. Nevertheless poor scientific data demonstrate the contribution of food of animal origin to the spreading of AR determinants to humans it is commonly acquired that animal food chain has a pivotal role. This project intends to elucidate this aspect by investigating without prejudices relevant food commodities both of animal and vegetal origin.