The role of nutritional interventions in the fight against antimicrobial resistance

PARTICIPANT INFORMATION SHEET

STUDY PROTOCOL ID: INT001

HUMAN RESEARCH ETHICS COMMITTEE NUMBER: 2021-108-HREC

INTRODUCTION

CSIRO is actively involved in research into health and nutrition, including understanding the links between nutrition, lifestyle and health. The Nutrition and Health Program have been working with Antimicrobial Resistance (AMR) Mission initiated by CSIRO in identifying potential nutritional solutions to help reduce AMR in humans. AMR is caused by the overuse of antibiotics for the treatment of infectious diseases which leads to a resistance to these drugs, making them less effective. AMR is estimated to cause more than 700,000 deaths every year. This burden to the society is expected to plunge 24 million people into extreme poverty by 2030.

We have conducted a literature review and have identified several potential nutritional intervention candidates that may assist in combating AMR. As part of this follow-up activity, you are invited to participate in a pilot clinical study to investigate the role of nutritional interventions in reducing the incidence of AMR

WHAT IS THE AIM OF THIS STUDY?

The aim of this study is to conduct a small pilot proof-of-concept human study to investigate the use of a combination of nutritional interventions to reduce AMR. In this pilot study, we will assess whether natural nutritional interventions enhance gut microbial diversity and profiles, reducing resistant bacteria in the gut as well as immune functions in humans. The results of this study will provide proof-of-concept evidence to support the potential role of these nutritional interventions in combatting AMR and whether it could be implemented as an adjunct dietary therapy for AMR.

HOW WILL THIS STUDY BE CARRIED OUT?

WHO CAN PARTICIPATE?

Healthy adults aged 18 to 65 years may be eligible to participate in this study.

Sixty individuals will participate in this clinical trial in Adelaide. You must meet all of the below selection criteria. These criteria along with other further criteria related to your health will be assessed for you during the screening process.

INCLUSION CRITERIA

- Willing to provide written Informed Consent
- Access to a smartphone and willing to download a free application from the app store
- Able to access own email inbox

- Be able to attend the CSIRO nutrition clinic for around 2.5 hours on two occasions across an eight-week period.
- Willing to consume their regular habitual diet throughout the study period
- Adults (males and females)
- ≥18-<66 years of age at clinic screen
- BMI of ≥18.5 - ≤35 kg/m2
- An episode of acute infection (any type) requiring at least one course of antibiotics in the past 3 months*

EXCLUSION CRITERIA

- Health conditions* that could affect gut and immune health such as gastrointestinal diseases [including, but not limited to diverticulitis, ulcerative colitis, Crohn's disease, or coeliac disease, colostomy], type 1 or type 2 diabetes, cancer, renal or liver diseases in the last 12 months.
- Immunocompromised (diagnosed with HIV, AIDS) or having an organ or bone marrow transplant in the last 12 months.
- Gastrointestinal symptoms* (i.e. pain, reflux, diarrhea, or constipation), surgeries* (i.e. bariatric surgery such as gastric banding) or use of medications* (i.e. appetite suppressants (orlistat, phentermine and liraglutide), steroids (corticosteroids) known to potentially affect energy intake, appetite, or gastrointestinal motor function
- Have a biliary disorder
- Currently taking medication for hypertension or high cholesterol
- Currently taking supplements (probiotics, prebiotics, fibre, micronutrients, multivitamins, essential oils) or functional foods (fermented food, polyphenols) in the previous 4 weeks of Visit 1.
- Known food allergies or intolerances to the study intervention products (refer to Appendix A)
- Pregnant and/or lactating women
- Current smoker (or history of smoking within the last six months)
- History of or known presence of alcohol abuse or illicit drug use*
- Received an investigational drug within 28 days prior to Visit 1 that in the opinion of the investigator may affect the applicant's ability to participate in the study or the study results

*Self-reported, no clinical testing will be performed

WHAT IS GOING TO HAPPEN AND WHAT TESTS WILL BE DONE?

You will be asked to complete a brief questionnaire and then a phone screening to ensure that you fit the criteria of the study. Eligible participants will be invited to the CSIRO Health and Nutrition Research Clinic for two appointments after an overnight fast. These appointments will take approximately 2.5 hours.

At the first clinic screening visit you will:

- be asked to sign a formal consent form and provide demography information that will include race and gender details.
- have your vital signs (blood pressure, temperature, respiratory rate) and height and weight checked by trained staff
- confirm details about your medical history, surgical history and medications

If you are deemed eligible to continue you will continue your appointment (Visit 1) and will:

- be randomised into one of four nutritional treatment groups taking a daily supplement
- complete a general gut health questionnaire
- collect a stool, saliva and urine sample (the stool sample can be performed at home)
- complete an intestinal permeability test which involves consuming a sugar solution and 90 minutes post drink having a blood sample collected by a trained nurse, phlebotomist or trained member of staff
- be instructed on how to complete weekly online surveys to monitor your intake of your nutritional supplement
- be instructed on how to complete your 24 hour diet diaries (3 x week, 1 weekend and 2 weekdays) for the first week after this visit and the last week prior to Clinic Visit 2. These diaries are completed by using an app on your smart phone called "Research Food Diary" by recording what you have eaten for the last 24 hours on three separate days.
- Opportunity to consume a light breakfast

You will repeat the same assessments completed at Visit 1 at the end of the study (Week 8 – Visit 2)

We will notify your GP of any medically relevant incidental findings that may require following up over the course of the study. If this occurs, you will also be informed.

WHAT ARE THE BENEFITS OF PARTICIPATING IN THIS STUDY?

You may not benefit directly from participation in this study, but you will be providing a valuable contribution to the scientific knowledge in this field.

At the completion of the study, you will be provided with up to $240 to thank you for your time taken to participate in this research project and to cover any expenses that you may experience. Should you withdraw before completion of the trial, reimbursement will be calculated on a pro-rata basis.

ARE THERE ANY RISKS INVOLVED?

There may be some risks in adhering to the study protocol.

There is a small risk of infection/blood clotting and or bruising following blood collection, however, this is minimised by having the blood samples collected by trained phlebotomist/nurses. Participants may also experience discomfort in the form of anxiety due to the thought of having a blood sample taken as well as collection of a urine, salvia and faecal samples. The intestinal permeability test involves consuming a sugar drink containing lactulose and rhamnose which may provide a mild gut discomfort such as bloating and diarrhoea
Prior to each visit participants will also be asked to undergo an overnight fast which may result in mild discomfort. Consuming the nutritional interventions on a daily basis may provide some inconvenience. There may be side effects that the researchers do not expect or do not know about. You should tell the study staff about any new or unusual symptoms that you experience.

All human research undertaken by the CSIRO must comply with the values, principles, governance and review process specified in the NH&MRC National Statement on Ethical Conduct in Human Research (2007). A copy of the National Statement can be found at https://nhmrc.gov.au/research-policy/ethics/national-statement-ethical-conduct-human-research.

ALTERNATIVES TO PARTICIPATION.

Participation in this research is voluntary and you may choose at any time to not participate, or withdraw your participation.

WHAT IF I WISH TO WITHDRAW?

You are free to withdraw at any time during the study, without penalty. However, subject to any relevant legislation and depending on the date of publication, it may not be reasonable or practical to remove your information. Information collected up to the point of your withdrawal will be included in the analysis of the study, unless you request that they be withdrawn. Where you would like to withdraw your consent, please contact the clinic.

It is also important to understand that we may choose to end your participation. That decision may be made if we decided that the study is not in your best interest, if you are unable to follow the protocol of the study, or if the study is discontinued. If we have to end your participation, we will make sure you are made aware of the reasons.

YOUR OBLIGATIONS AS A PARTICIPANT.

You will need to inform a study staff member of any changes in your health as some changes could have an effect on your participation in the study and the study findings. You must also be able to undertake all relevant procedures during the study period.

HOW WILL MY PRIVACY BE PROTECTED?

Your personal information is protected by the *Privacy Act 1988 (Cth)* (Privacy Act) and CSIRO will handle your personal information in accordance with this Act and the NH&MRC National Statement on Ethical Conduct in Human Research (2007) as amended from time to time.

CSIRO is collecting your personal (and sensitive) information, including your date of birth, gender, signature, racial representation, pregnancy status, vital signs (e.g. blood pressure, heart rate, temperature and respiratory rate), physical health, height, weight, study questionnaire responses, biological samples (from which further information can be derived), medical history any medications that you are currently taking for the purposes of the study and related scientific research. If you do not provide your personal information, you will not be able to participate in this study.

The information that CSIRO gathers from you for the purpose of this study will be maintained for the duration of this study and for as long as it is required for CSIRO's operations. Your information will subsequently be destroyed or permanently de-identified in accordance with legislative requirements (including the *Archives Act 1983* (Cth).

CSIRO may disclose your personal information to the ethics board for this study, regulatory bodies and other health professionals for the purposes outlined above. CSIRO will require such third parties to keep this information confidential and to only use your personal information for the purposes of the study and in accordance with the Privacy Act. As mentioned above, CSIRO will also notify your GP of any medically relevant incidental findings that may require following up over the course of the study. If this occurs, you will also be informed.

CSIRO may publish study results and data in research publications and press releases, however, CSIRO will de-identify any personal information contained in the data and results so that you cannot be identified.

The CSIRO Privacy Policy available at https://www.csiro.au/en/About/Access-to-information/Privacy outlines how your personal information will be handled, including details about how you can seek access or correction of the personal information we hold about you and how you can complain about a breach of the APPs and how CSIRO will deal with the complaint. If you require further information on how your personal information will be handled, please contact privacy@csiro.au

OTHER LEGAL MATTERS

The study will be performed in accordance with Good Clinical Practice guidelines and the applicable local regulatory requirements. Approval will be obtained from the appropriate regulatory agency prior to the study site initiation. The Sponsor agrees to abide by the required guidelines for compensation of clinical trial participants. Compensation will only be provided on the understanding that the provision of compensation does not amount to an admission of legal liability and it is dependent on the proposed recipient signing a full and complete release of the company from all claims, damages and costs.

IF YOU HAVE FURTHER QUESTIONS.

Please call the Nutrition Research Clinic on 8305 0615 or via email CRUstudies@csiro.au . Please mention that you are calling regarding the Antimicrobial Resistance Study.

This study has been approved by the CSIRO Human Research Ethics Committee. If you would like to speak with someone with respect to ethical matters or wish to register a formal complaint about the conduct of this research, please contact the Secretary of the Committee via email at chmhrec@csiro.au or phone on (07) 3833 5693.

CONSENT

I have read and understood this Participant Information Sheet and consent to my participation (including the collection, use and disclosure of my personal information) in accordance with its terms.

Participants Full name: …… Signature: …… Date: / /

CONTACT US

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