

Format rapportage projectinformatie PPS-en Landbouw, water, voedsel

Datum versie: 7 december 2020

Uit projectplan (svp zoveel mogelijk invullen)

1. Projectinformatie

1.1 Organisatie/financiering (keuze maken)	TKI A&F
1.2 Projectnummer	AF-18143
1.3 Project titel	No Guts No Glory
1.4 Projectleider (naam en emailadres)	Frank Schuren (frank.schuren@tno.nl)
1.5 Startdatum (dd-mm-jjjj)	01-05-2019
1.6 Einddatum (dd-mm-jjjj)	31-12-2022
1.7 MMIP primair (nummer en naam van het MMIP, zie overzicht bijlage 1)	D2 Gezonde voeding een makkelijke keuze
1.8 MMIP secundair (deze alleen invullen als er een 2 ^e MMIP is waar het project aan bijdraagt)	

2. Projectomschrijving

2.1 Samenvatting

In this public private partnership TNO, DSM Nutritional Products and CHDR will investigate in healthy people (age 45-75 years) the systemic health effects of modulating the gut microbiome using dietary fibers. Disease prevention through improving human health is attracting more attention. The gut microbiome is an important new target in these approaches. However, even though the role of the microbiome in human health and disease is increasingly recognized, the specific relationships between gut microbiome and human health are largely unknown and there is an urgent need for new approaches to study this interaction, not only in lab mice but also in humans.

Previously, TNO has developed two measurement solutions, one on the gut microbiome which is a platform called i-screen and one on measurement of health in form of resilience in healthy people (quantification of a person's phenotypic flexibility (personal response to a dietary challenge)).

In the current project we will:

- Set up a clinical intervention study to investigate if it is possible to relate the effects of influencing the gut microbiome, by dietary fiber consumption, to health, which is quantified as a person's phenotypic flexibility.
- Report on the combination of *in vitro* (i-screen) and *in vivo* (from the clinical trial) gut microbiome data to investigate if only screening *in vitro* will provide clarity on effects.

2.2 Doel van het project

With this approach we would like to conclude on an important problem in the applied gut microbiome research in which many products show effects on gut microbiome, however effectiveness and contribution to general health are unclear.

2.3 Motivatie

The combination of microbiome modulation and PhenFlex technology is novel and can have a major impact on the sector, contributing to possible scientific substantiation of health effects from, nutritional interventions such as pro- and prebiotics, novel technology development related to food, and supplement product development for gut health, and later also for consumers and society.

2.4 Resultaat

Work packages

The project is organized in five work packages (WP):

- WP1 Project management and meetings – including reporting, finances, organization etc.
- WP2 Human intervention study – including the design of the prebiotic fiber mix, the design and set-up of the clinical intervention, the final selection of biomarkers, writing the study protocol for METC approval, recruitment of subjects and execution of the clinical intervention study and sampling.
- WP3 Lab analyses – including part a) on the analysis of biomarkers of the *in vivo* samples (blood, stool) and part b) the analysis of the *in vitro* stool samples (i-screen).
- WP4 Data analyses – including data integration, visualization and statistics.
- WP5 Dissemination – including scientific publications and presentations at conferences regarding the project and its outcomes.

Mile stones

M1 (2019). Consortium and final project plan are approved by all partners.

M2 (2019). Study is approved by Medical Ethical Committee (METC). Start recruitment.

M3a (2020). Start *in vitro* analyses of first samples.

M3b (2021). All human samples have been collected (Last Subject Out).

M4 (2021). All samples (*in vitro* and *in vivo*) have been collected and analyzed. Start data-analyses.

Deliverables

D1 (2019). Study proposal for the METC.

D2 (2022). Report on the use of combining *in vitro* and *in vivo* microbiome data.

D3 (2022). Draft scientific publication(s) of the intervention study.

Time line

Adepted to approved end date 31-12-2022.

	2019		2020				2021				2022			
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
WP 1 pm and meetings	M1	D1												
WP 1A finalize mixture														
WP2 human study		M2						M3b						
WP3 lab analysis								M3a						
WP4 data analysis									M4					
WP5 dissemination														D2, D3

Jaarrapportage (svp ook laatste jaar invullen)

3. Status project

3.1 Status project (keuze maken)	project loopt achter
3.2 Toelichting incl. voorziene wijzigingen t.o.v. het oorspronkelijke werkplan	Due to the COVID-19 pandemic and the resulting restrictions the start of the human study was postponed for approximately 3 months. In addition, subsequent lab analysis were delayed and thus data analysis. In December 2021 TKI-AgriFood approved the prolongation of the project until 31-12-2022.

4. Behaalde resultaten

4.1 Korte beschrijving van de inhoudelijke resultaten en hun bijdrage aan het MMIP (zoals beschreven in 2.2)
<ul style="list-style-type: none"> In August 2020 the execution of the human study started and in June 2021 the mile stone of last subject last visit was achieved, and with this all human samples collected (M3b). The <i>in vitro</i> analyses of the feces samples was started (M3a) and completed in the second half of 2021. The data of the study has been transferred to TNO for storage and statistical analysis. The cooperation and communication between the partners is sufficiently frequent, friendly, efficient and effective.
4.2 Deliverables (bijeenkomsten en andere output, die niet benoemd wordt in 4.3 en 4.4)
NA
4.3 Communicatie (lijsten)
4.3.1 Wetenschappelijke artikelen en hun doi (<i>Digital Object Identifiers</i>)
NA
4.3.2 Rapporten/artikelen in vakbladen
NA
4.3.3 Overige communicatie-uitingen (inleidingen/posters/radio-tv/social media/workshops/beurzen)
NA
4.4 Overige resultaten: technieken, apparaten, methodes
NA
4.5 Projectwebsite: geef het adres van de projectwebsite (indien beschikbaar)
AF-18143 Measurement of gut health - Topsector Agri & Food (topsectoragrifood.nl)