



PPP Project Annual Report 2018

The PPP-projects that have been established under the direction of the top sectors must submit an annual report on their technical and financial progress. This format is to be used for reporting the technical progress. A separate format ('PPP final report') is available for PPP-projects that have been completed in 2018.

The annual reports will be published in full on the websites of the TKIs/top sector, excluding the blocks 'Approval coordinator/consortium' and 'Planning and progress'. Please ensure that no confidential matters are left in the remaining blocks.

The PPP Project Annual Reports must be submitted to the TKI's before March 1st 2019. For Wageningen Research this will be coordinated via a central point.

General information	
PPP number	AF-15263
Title	Harness bacterial platform for mono- and diterpene production
Theme	
Executive knowledge institution(s)	WUR-WPR, BU Bioscience
Research project leader (name + e-mail address)	Jules Beekwilder (jules.beekwilder@wur.nl)
Coordinator (on behalf of private parties)	Jaap Drenth namens Isobionics
Government contact person	Wijnie van Eck, Jan van Esch
Total project size (k€)	1200
Address projectwebsite	
Start date	01-01-2016
End date	31-12-2019

Approval coordinator/consortium	
<i>The annual report should be discussed with the coordinator/the consortium. The TKIs appreciate being informed of possible feedback on the annual report.</i>	
The coordinator has assessed the annual report on behalf of the consortium:	<input checked="" type="checkbox"/> approved <input type="checkbox"/> rejected
Possible feedback on the annual report:	

Planning and progress (if there are changes to the project plan, please explain)	
Is the PPP going according to plan?	yes
Have there been changes in the consortium/project partners?	Yes. For 2019, the partner Biostream will no longer participate. Instead Delft Advanced Biorenewables (DAB) will take over the obligations of Biostream. The reason is that Biostream has moved away from the originally envisaged technology. In cash and in kind contributions which were originally planned for Biostream in 2019 (25 k€ in kind; 21.25 k€ in cash) will be covered by DAB.
Is there a delay and/or deferred delivery date?	no

Are there any substantive bottlenecks? Provide a brief description	no
Are there any deviations from the projected budget?	Due to "zorgverlof" of one of the technicians involved in the project during 2018, we have moved 12 k€ forward from 2018 to 2019 (NAPRO).

<p>Short content description/aim PPS What is going on and how is this project involved? What will be delivered by the project and what is the effect of this?</p>
<p>Isobionics focuses to produce isoprenoids for the F&F market, by using a biobased production platform. This project aims to expand the products that can be made with this platform to novel product categories.</p>

<p>Results in 2018/ so far Give a short description of the high-lights and project deliverable in 2018 / so far</p>
<p>An important goal of the PPS is to engineer the bacterial platform (Rhodobacter) in such a way that it can produce novel product categories. Normally the platform is applied to make C15 terpenes (sesquiterpenes), but in this project we try to tweak it to produce C10 terpenes (monoterpenes) or C20 terpenes.</p> <p>In 2018 we have succeeded in improving the yield of monoterpenes in Rhodobacter. In 2017 we produced barely detectable traces of the monoterpene limonene; after 2018 we reach 100 mg/L. Although these are not yet commercially interesting quantities, important conclusions can be drawn from this step forward, which will enable the further increase of product titre.</p> <p>In 2018 we have, for the first time, produced diterpenes in Rhodobacter. The Rhodobacter system for producing the diterpene sclareol was very productive and reached near-commercial titres. Here we need to diversify the terpene synthases applied in the system, in order to investigate the effect of diterpene synthase identity in the efficiency of the production. In monoterpene production, monoterpene synthase identity is extremely important.</p>

Number of delivered products in 2018 (in an appendix, please provide the titles and/or description of the products or a link to the products on public websites)			
Academic articles	Reports	Articles in journals	Introductions/workshops
1			2
Titles/ description of the most important products in 2018 (5 at max) and their target group			
<p>An analysis of characterized plant sesquiterpene synthases. Durairaj J, Di Girolamo A, Bouwmeester HJ, de Ridder D, Beekwilder J, van Dijk AD. Phytochemistry. 2019 Feb;158:157-165. doi: 10.1016/j.phytochem.2018.10.020.</p> <p>Chairman at Bioflavour 2018 conference, September 18-21, 2018, Frankfurt am Main (D)</p> <p>Invited lecture in seminar series titled "From Systems Biology to Synthetic Biosystems". November 1st 2018, University of Potsdam (D).</p>			

Appendix: Names of the products or a link to the products on a public website including the link to the project summary on Kennisonline

<https://www.wur.nl/nl/Onderzoek-Resultaten/Onderzoeksprojecten-LNV/Expertisegebieden/kennisonline/Harness-bacterial-platform-for-mono-and-di-terpene-production-.htm>