

OPEN

Author Correction: Regulatory Role of PlaR (YiaJ) for Plant Utilization in *Escherichia coli* K-12

Tomohiro Shimada , Yui Yokoyama, Takumi Anzai, Kaneyoshi Yamamoto & Akira IshihamaCorrection to: *Scientific Reports* <https://doi.org/10.1038/s41598-019-56886-x>, published online 31 December 2019

The original version of this Article contained errors in the Abstract.

“Outside a warm-blooded animal host, the enterobacterium *Escherichia coli* K-12 is also able to grow and survive in stressful nature. The major organic substance in nature is plant, but the genetic system of *E. coli* how to utilize plant-derived materials as nutrients is poorly understood. Here we describe the set of regulatory targets for uncharacterized IclR-family transcription factor YiaJ on the *E. coli* genome, using gSELEX screening system. Among a total of 18 high-affinity binding targets of YiaJ, the major regulatory target was identified to be the *yiaLMNOPQRS* operon for utilization of ascorbate from fruits and galacturonate from plant pectin. The targets of YiaJ also include the genes involved in the utilization for other plant-derived materials as nutrients such as fructose, sorbitol, glycerol and fructoselysine. Detailed *in vitro* and *in vivo* analyses suggest that L-ascorbate and α -D-galacturonate are the effector ligands for regulation of YiaJ function. These findings altogether indicate that YiaJ plays a major regulatory role in expression of a set of the genes for the utilization of plant-derived materials as nutrients for survival. PlaR was also suggested to play protecting roles of *E. coli* under stressful environments in nature, including the formation of biofilm. We then propose renaming YiaJ to PlaR (regulator of plant utilization). The natural hosts of enterobacterium *Escherichia coli* are warm-blooded animals, but even outside hosts, *E. coli* can survive even under stressful environments. On earth, the most common organic materials to be used as nutrients by *E. coli* are plant-derived components, but up to the present time, the genetic system of *E. coli* for plant utilization is poorly understand. In the course of gSELEX screening of the regulatory targets for hitherto uncharacterized TFs, we identified in this study the involvement of the IclR-family YiaJ in the regulation of about 20 genes or operons, of which the majority are related to the catabolism of plant-derived materials such as ascorbate, galacturonate, sorbitol, fructose and fructoselysine. Therefore, we propose to rename YiaJ to PlaR (regulator of plant utilization).”

now reads:

“Outside a warm-blooded animal host, the enterobacterium *Escherichia coli* K-12 is also able to grow and survive in stressful nature. The major organic substance in nature is plant, but the genetic system of *E. coli* how to utilize plant-derived materials as nutrients is poorly understood. Here we describe the set of regulatory targets for uncharacterized IclR-family transcription factor YiaJ on the *E. coli* genome, using gSELEX screening system. Among a total of 18 high-affinity binding targets of YiaJ, the major regulatory target was identified to be the *yiaLMNOPQRS* operon for utilization of ascorbate from fruits and galacturonate from plant pectin. The targets of YiaJ also include the genes involved in the utilization for other plant-derived materials as nutrients such as fructose, sorbitol, glycerol and fructoselysine. Detailed *in vitro* and *in vivo* analyses suggest that L-ascorbate and α -D-galacturonate are the effector ligands for regulation of YiaJ function. These findings altogether indicate that YiaJ plays a major regulatory role in expression of a set of the genes for the utilization of plant-derived materials as nutrients for survival. PlaR was also suggested to play protecting roles of *E. coli* under stressful environments in nature, including the formation of biofilm. We then propose renaming YiaJ to PlaR (regulator of plant utilization).”



Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this license, visit <http://creativecommons.org/licenses/by/4.0/>.

© The Author(s) 2020