

# Resource Summary Report

Generated by [kravitz2](#) on Jul 29, 2026

## RF21

RRID:Addgene\_102803

Type: Plasmid

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### Proper Citation

RRID:Addgene\_102803

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### Plasmid Information

**URL:** <http://www.addgene.org/102803>

**Proper Citation:** RRID:Addgene\_102803

**Insert Name:** none

**Bacterial Resistance:** None

**Defining Citation:** [PMID:33289521](#)

**Vector Backbone Description:** Vector Backbone:none; Vector Types:; Bacterial Resistance:None

**Comments:** This work is supported in part by JSPS-NSF International Collaborations in Chemistry (ICC) research grant. Genotype= aspC tyrB ilvE avtA yfbQ(alaA) yfdZ(alaC) Precursor strain = RF18 Modified from the parent Escherichia coli BL21(DE3) strain Selective amino acid labeling (and/or requirement) = Asp, Tyr, Phe, Ile, Leu, Val##### RF21 has knockouts in the four general transaminase genes of E. coli (aspC, tyrB, ilvE, and avtA) and is found to require the presence of L-Asp, L-Tyr, L-Phe, L-Ile, L-Leu plus L-Val for slow growth in M63 minimal medium. Although RF21 strain has further knockouts in yfbQ (alaA) and yfdZ (alaC) genes, it is NOT an L-Ala auxotroph, either (requiring the presence of L-Asp, L-Tyr, L-Phe, L-Ile, L-Leu plus L-Val for slow growth in M63 minimal medium, like RF18). Please visit the following links for additional details on this strain and selective amino acid labeling- <http://www2.nms.ac.jp/fesworld/EcoliStrains.html> <http://www2.nms.ac.jp/fesworld/EcoliStrainsSuppl.html> Note that these strains are NOT competent cells and one needs to make them competent before use. Supplemental documents contain a list of PCR primers used for verification of each knocked-out gene as well as an image showing PCR results for this strain. Supporting References: Lin, M. T., Fukazawa, R., Miyajima-Nakano, Y., Matsushita, S., Choi, S. K., Iwasaki, T., and Gennis, R. B. (2015) Escherichia coliauxotroph host strains for amino acid-selective isotope labeling of recombinant proteins. Methods Enzymol. (Isotope Labeling of Biomolecules - Labeling Methods), 565, 45-66. Iwasaki, T., Fukazawa, R., Miyajima-Nakano, Y., Baldansuren, A., Matsushita, S., Lin, M. T., Gennis, R. B., Hasegawa, K., Kumasaka, T.,

and Dikanov, S. A. (2012) Dissection of hydrogen bond interaction network around an iron-sulfur cluster by site-specific isotope labeling of hyperthermophilic archaeal Rieske-type ferredoxin. J. Am. Chem. Soc. 134, 19731-19738. Lin, M. T., Sperling, L. J., Frericks Schmidt, H. L., Tang, M., Samoilova, R. I., Kumasaka, T., Iwasaki, T., Dikanov, S. A., Rienstra, C. M., and Gennis, R. B. (2011) A rapid and robust method for selective isotope labeling of proteins. Methods 55, 370-378.

**Plasmid Name:** RF21

**Record Creation Time:** 20220422T221457+0000

**Record Last Update:** 20260725T073351+0000

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## Ratings and Alerts

No rating or validation information has been found for RF21.

No alerts have been found for RF21.

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## Data and Source Information

**Source:** [Addgene](#)

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## Usage and Citation Metrics

We have not found any literature mentions for this resource.