## CORRECTION

**BMC** Genomics



# Correction: Chromosome-level genome assemblies of *Cutaneotrichosporon* spp. (Trichosporonales, Basidiomycota) reveal imbalanced evolution between nucleotide sequences and chromosome synteny

Yuuki Kobayashi<sup>1\*</sup>, Ayane Kayamori<sup>2</sup>, Keita Aoki<sup>1</sup>, Yuh Shiwa<sup>2</sup>, Minenosuke Matsutani<sup>3</sup>, Nobuyuki Fujita<sup>2</sup>, Takashi Sugita<sup>4</sup>, Wataru Iwasaki<sup>5</sup>, Naoto Tanaka<sup>2</sup> and Masako Takashima<sup>1\*</sup>

#### Correction: BMC Genomics 24, 609 (2023) https://doi.org/10.1186/s12864-023-09718-2

Following publication of the original article [1], it was reported that part of the figure captions for Figs. 1, 2, 3, 4 and 5 were mistakenly inserted into the article body.

Part of the caption of Fig. 1 appeared in the sub-section "Sequencing and assembly results" and was processed as the paragraph directly preceding the beginning with

The original article can be found online at https://doi.org/10.1186/s12864-023-09718-2.

\*Correspondence:

Yuuki Kobayashi

yk208115@nodai.ac.jp

Masako Takashima

mt207623@nodai.ac.jp

<sup>1</sup> Laboratory of Yeast Systematics, Tokyo NODAI Research Institute (TNRI), Tokyo University of Agriculture, 1-1-1 Sakuragaoka, Setagaya, Tokyo 156-8502, Japan

<sup>2</sup> Department of Molecular Microbiology, Faculty of Life Sciences, Tokyo University of Agriculture, 1-1-1 Sakuragaoka, Setagaya, Tokyo 156-8502, Japan

<sup>3</sup> NODAI Genome Research Center, Tokyo University of Agriculture, 1-1-1 Sakuragaoka, Setagaya, Tokyo 156-8502, Japan

<sup>4</sup> Department of Microbiology, Meiji Pharmaceutical University, 2-522-1 Noshio, Kiyose, Tokyo 204-8588, Japan

<sup>5</sup> Department of Integrated Biosciences, Graduate School of Frontier Sciences, The University of Tokyo, Kashiwa, Chiba 277-0882, Japan "The self-synteny plot of the Cutaneotrichosporon genome showed no obvious centromeric repeats ..."

Part of the caption of Fig. 2 appeared as the final paragraph of the sub-section "Comparison of nuclear genomes."

Part of the caption of Fig. 3 appeared as the final paragraph of the sub-section "Quantification of differences in genomes using different criteria."

The captions of Fig. 4 and 5 appeared as the final two paragraphs of the sub-section "Genes and synteny of mitochondrial genomes."

The correct Figs. 1-5 with their captions are given in this Correction article and the original article [1] has been updated.



© The Author(s) 2023. **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 licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence 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 licence, visit http://creativecommons.org/licenses/by/A.0/. The Creative Commons Public Domain Dedication waiver (http://creativecommons.org/licenses/by/A.0/. The Creative Commons Public Domain Dedicated in a credit line to the data.

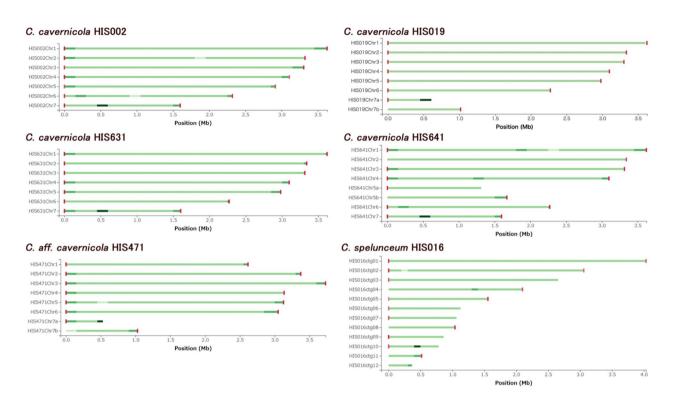


Fig. 1 Chromosome continuity of genomes assemblies. Telomere sequence and sequencing depth was illustrated using Tapestry 1.0.0. Red rectangles at the termini stand for telomere repeat sequences (CCCCTAA/TTAGGGG). The intensity of the green lines indicates the depth of sequencing reads. The dark-coloured region on Chr.7 in the genomes of HIS002, HIS019, HIS631, HIS641, and HIS471, and on ctg.10 in the genome of HIS016 correspond to rDNA repeats

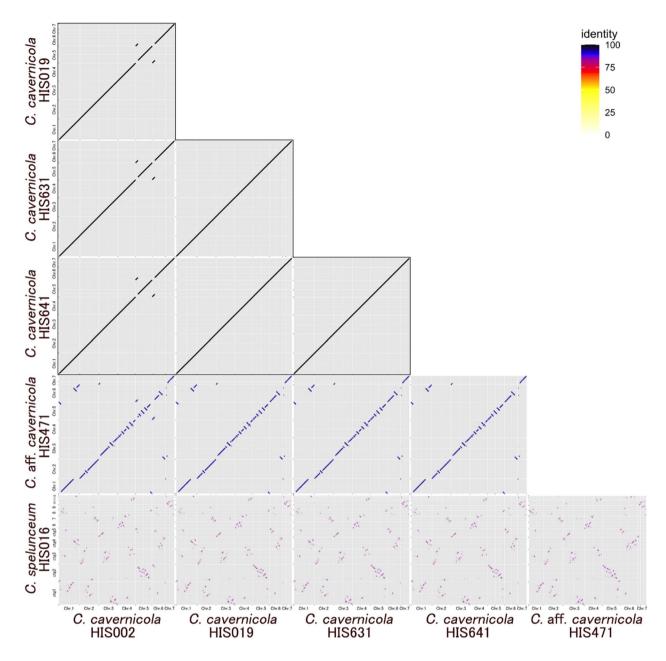
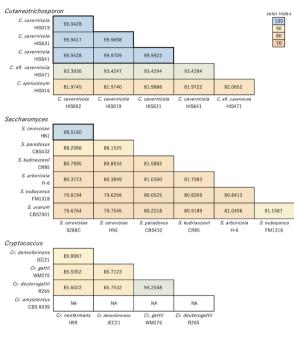
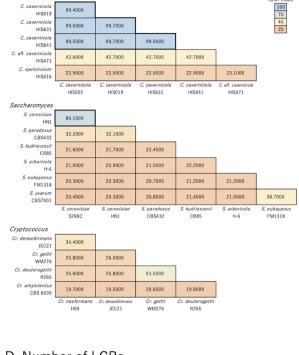


Fig. 2 Plots of chromosome syntemy based on pairwise BLASTN alignment among *Cutaneotrichosporon* strains. The line colour reflects the percentage of nucleotide identity in the alignment as shown in the legend

A. ANI





#### C. % identity of ITS Cutaneotrichospor 100 99 98 97 C. cavernicola HIS019 C. cavernicora HIS019 100.0000 C. ca C. c. 100.0000 100.0000 HIS631 HIS63 С. с. C. cave 100.0000 100.0000 100.0000 HIS641 HIS641 C. aff. c C. aff. cav 100.0000 100.0000 100.0000 100.0000 HIS471 HIS471 C. sp C. sp 98.6742 98.6742 98.6742 98.6742 98.6742 lunceum HIS016 HIS016 *cavernic* HIS019 HIS631 HIS641 HISOD2 HIS471 Saccharomyces Saccharomyces S. cerevisiae HN1 S. cerevisiae HN? 99.5238 S. paradox S. parad 98,9298 98.9286 utant 337 CBS432 S. kudri S. ku 97.9762 98.0952 97.9786 CR85 CR85 S. eubayanus CBS12357 S. arboricol. 97.6219 96.7933 96,7895 97.1463 н-е S. eubayanus FM1318 S. uvarum CBS7001 97.0309 97.0273 97.5030 97.9786 99.8805 S. kudriavz CR85 *S. cerevisiae* S288C *S. cerevisiae* HN1 S. paradox S. eubayanu CBS12357 mutant337 CBS7001 Crvptococcus Cryptococcus Cr. deneoformar Cr. deneoforma 99.4585 JEC21 JEC21 Cr. gattii WM276 Cr. gattii WM276 99.0991 98,9189 *Cr. deuterogattii* R265 Cr. deuterogattin R265 99.4585 99.2780 99.2793 Cr amylo Cr. amvlolentu 96.2094 96.2094 95 8559 96.2094 CBS 6039 CBS 6039 Cr. gatti. WM276 Cr. deuterogatti. R265 neofor H99 JEC21

### D. Number of LCBs

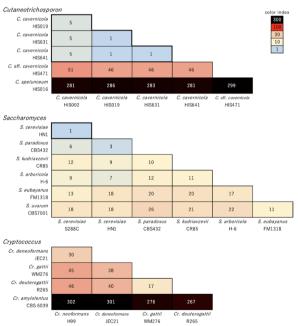
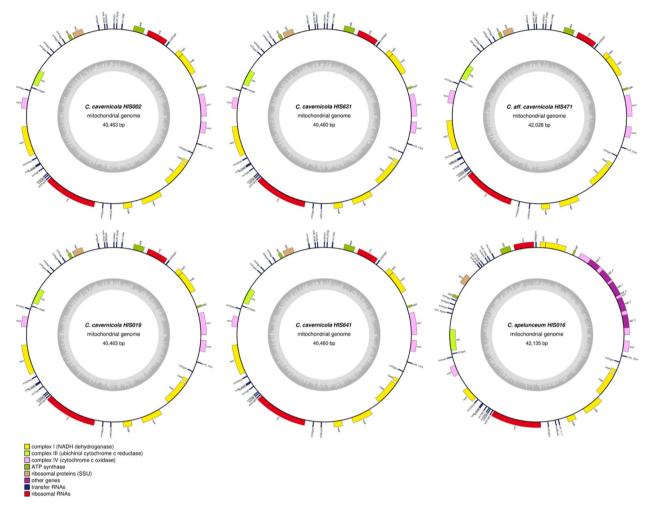


Fig. 3 Genome similarities based on multiple criteria among *Cutaneotrichosporon* strains compared with reference *Saccharomyces* and *Cryptococcus*. Thick-bordered areas in the *Cutaneotrichosporon* and *Saccharomyces* panels indicate intraspecific comparisons among the *C. cavernicola* standard strains and *S. cerevisiae*, respectively. Box colours identify identical genomes (blue) and the most distant interspecific comparison (orange) in *Saccharomyces*. **A**; ANI score. **B**; GBDP score calculated with GGDC. The scores for formula 2 are shown according to the recommendation in Henz et al. [9], and scores by all three formulae are shown in Fig. S6. **C**; Percentage identity in the ITS sequence. **D**; Number of LCBs with a minimum weight of 10 kb

#### B. Digital DDH based on GGDC

Cutaneotricho



**Fig. 4** Mitochondrial genomes of *Cutaneotrichosporon* strains. Genes projecting outward from the outer circles indicate genes transcribed in the forward direction; genes projecting inward from the outer circles indicate genes transcribed in the reverse direction. Gene families are identified by colour as shown in the legend. The inner circles represent the GC content of the sequences

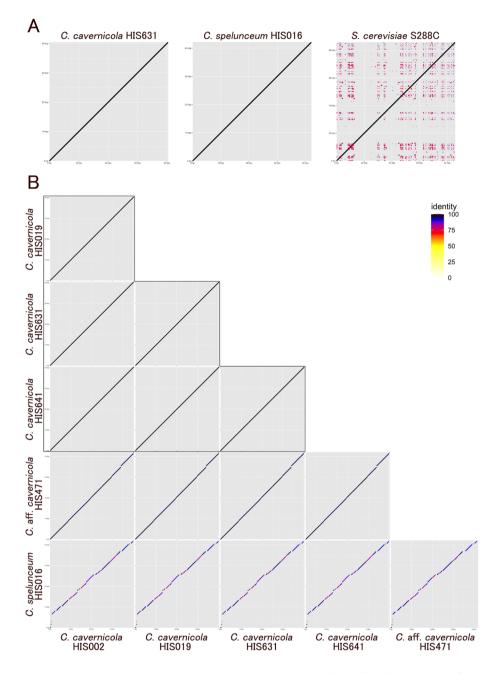


Fig. 5 Plots of mitochondrial genome syntemy based on pairwise BLASTN alignments. Line colour reflects the percentage of nucleotide identity in the alignment as shown in the legend. A; Self syntemy of C. cavernicola HIS631, C. spelunceum HIS016, and the reference S. cerevisiae S288C. B; Pairwise syntemy plots among Cutaneotrichosporon mitogenomes

#### Published online: 30 October 2023

#### Reference

 Kobayashi Y, et al. Chromosome-level genome assemblies of *Cutaneotrichosporon* spp. (Trichosporonales, Basidiomycota) reveal imbalanced evolution between nucleotide sequences and chromosome synteny. BMC Genomics. 2023;24:609. https://doi.org/10.1186/s12864-023-09718-2.