Correction to: Potential causes and consequences of rapid mitochondrial genome evolution in thermoacidophilic Galdieria (Rhodophyta)

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Following publication of the original article [1], the authors identified an error in Fig. 1. and Fig. 4. The correct figures are given below.

The correct figures and captions have been included in this correction, and the original article has been corrected.

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**Fig. 1** Overview of the major characteristics of Cyanidiophyceae and its phylogeny. 

**a** Comparison of key characteristics of the *Cyanidium*-type and *Galdieria*-type species showing two different types of cyanidiophycean cells. Based on existing studies, key characteristics were summarized in this figure with n: nucleus, pt: plastid, and arrow: mitochondria.

**b** Maximum-likelihood phylogeny using a concatenated 32-protein alignment of 12 mitochondrial genomes. Four non-cyanidiophycean species were chosen as the outgroup. The simplified genome structure of cyanidiophycean mitochondria is illustrated next to the phylogenetic tree.
Fig. 4 [See legend on next page.]

**A**

**[Galdieria-type]**

*Galdiera sulphuraria* 108.79 E11

- **CDS** (F: 17, R: 1)
- **rRNA** (F: 2)
- **tRNA** (F: 7)

**Cyanidium-type**

*Cyanidioschyzon merolae* 10D

- **CDS** (F: 18, R: 16)
- **rRNA** (F: 3)
- **tRNA** (F: 19, R: 6)

**B**

- **Replication origin**
- **H-strand** (heavy strand, leading strand)
- **L-strand** (light strand, lagging strand)
- **RNA**
- **Controversial (multiple hypotheses)**

**Lower DNA replication fidelity**
- Continuous DNA replication, higher mutation rates

**Higher DNA replication fidelity**
- Discontinuous DNA replication (Okazaki fragments), lower mutation rates

**Accumulation of mutations**

- **Galdieria-type (G-type) species**
  - Unidirectional: mammalian mitochondrial DNA replication systems (e.g., SDM, RITOLS, rolling circle)

- **Cyanidium-type (C-type) species**
  - Bidirectional: general DNA replication system
Two different models for mitogenome replication in Cyanidiophyceae. Unidirectional and conservative replication (separate leading and lagging strands for each daughter strand) in *Galdieria*-type and bidirectional and semiconservative replication (mixed leading and lagging strand for each daughter strand) in *Cyanidium*-type. **a** GC-skew of representative structure comparison. F: forward, R: reverse. **b** Hypothetical models of the mitochondrial DNA replication system and mitogenome inheritance model.