Response to Reviewer 2 Comments

The authors thank the reviewers for their thoughtful comments, which have been addressed below. The comments and suggestions are included with responses to each written in red:

The authors compared AZD8055-treated Chlamydomonas cells and the control cells in cell growth, syntheses of macromolecules (protein, lipid, carbohydrate etc.), photosynthetic activity, and Cys-oxidized proteins. They congregate these results together to conclude that TOR inhibition induces cellular oxidative conditions which changes metabolic pathway such as accumulation of triacylglycerol.

However, this reviewer thinks that these data are too preliminary for the authors’ conclusion. For example, TOR (Tor complex1) has a multiple role in protein synthesis, and TOR inhibition affects biogenesis of many species of macromolecules shown in Fig.2b. But the authors only focused on an oxidative effect of TOR inhibition and ignored another effects. They should test various conditions (e.g. another protein synthesis inhibitors, oxidative stress, dark and starvation conditions). Therefore, this reviewer does not recommend this manuscript to be published in Cells Journal.

Response: The purpose of this paper was to investigate the extent to which TOR uses reversible cysteine oxidation for signalling. Although a previous paper (Werth et al.,2019) mapped the correlating phosphorylation network, no studies have been previously conducted to determine the magnitude of oxidative signalling. The suggested experiments from the reviewer, while of interest to the community, constitute a massive undertaking which would likely take several years to complete, and would involve a high magnitude of data that would be impossible to reduce to a single manuscript. Therefore, we are unable to satisfy the suggestions of this reviewer.