

## Study on the relationship between mitochondrial activation and chemical structure of polyphenols using mitochondrial membrane potential in *Tetrahymena cells*

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### SUMMARY

To study the relationship between mitochondrial activation and the chemical structure of polyphenols, we investigated the effects of galloyl residues on mitochondrial activation, using a method that measures mitochondrial membrane potential in *Tetrahymena* cells. Catechins with one galloyl residue, such as epicatechin gallate and epigallocatechin gallate, activated mitochondria more than catechins without galloyl residues, such as epicatechin and epigallocatechin. In addition, theaflavin-3,3'-O-digallate has higher activity than theaflavin and theaflavin-3,3'-O-monogallate. These results suggest that the number of galloyl residues in polyphenols is important in mitochondrial activation.