

## Response to manuscript by Pfaff *et al.*: Evidence against a role of DJ-1 in methylglyoxal detoxification

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The manuscript by Pfaff *et al.* (1) claims that DJ-1 doesn't prevent glycation in *Drosophila* and that its deglycase activity is a Tris artifact. I found the following points in Ref. 1 to be troubling. (i) Pfaff *et al.* didn't provide final Tris concentrations. (ii) The presence of Tris in our DJ-1 preparation is not reported (2). DJ-1, prepared in Tris or phosphate buffer, displays similar activities (3), and its active site mutant C106S is inactive (2). (iii) In the study by Pfaff *et al.*, DJ-1 samples displayed massive protein aggregation and potential protein inactivation. (iv) Pfaff *et al.* (1) didn't consider that lactate formation implicates a deglycase activity that couldn't result from a Tris effect that would have only displaced the cysteine/methylglyoxal/hemithioacetal equilibrium toward methylglyoxal formation. Moreover, stable lysine/arginine methylglyoxal adducts wouldn't have been affected by Tris (2, 3). (v) They also didn't take into account that the apparent glyoxalase III activity of DJ-1 reflects its deglycase activity and should have been investigated (2–4). (vi) Consequently, their paper implies that glyoxalase III activities reported by several groups would be artifactual (3, 4). (vii) They didn't observe that, in their publication (Fig. 1E), DJ-1- and glyoxalase-deficient cells displayed similar increases in protein glycation levels. (viii) Protein glycation levels increase by a fac-

tor of 3 to 10 in deglycase-deficient cells (reviewed in Ref. 3). (ix) Deglycases prevent acrylamide formation by degrading Maillard adducts (5). (x) In addition to protein repair, DJ-1/Park7 and its bacterial homologs perform nucleotide and DNA repair (6). Because Maillard adducts are their substrates, we renamed them "DJ-1 family Maillard deglycases" (3, 6). Ref. 3 provides a methodical rebuttal to the paper by Pfaff *et al.* (1).

### References

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The author declares that he has no conflicts of interest with the contents of this article.

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