Screening of photoactivated adenylyl cyclases encoded by *Naegleria australiensis*, *N. jadini* and *N. fowleri*

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SUMMARY

Photoactivated adenylyl cyclases (PACs) are blue-light receptor flavoproteins that produce cAMP when irradiated by blue light. PACs are promising tools in molecular and cellular biology for photomanipulation of the intracellular cAMP level in cultured cells and organisms. PACs found in several euglenoids consist of 850 aa - 1030 aa bearing two "sensors of blue-light using FAD" domains (BLUF domains) and two adenylyl cyclase domains (AC domains). A recent study has shown that *Naegleria gruberi*, a free-living eukaryotic microorganism, encodes three PACs (NgPAC1 consisting of 390 aa, NgPAC2 consisting of 392 aa and NgPAC3 consisting of 489 aa). These proteins bear a single BLUF domain and a single AC domain. We screened orthologs of NgPACs in *N. australiensis* and *N. jadini* by PCR and found that these organisms encode at least two proteins similar to NgPACs. The *N. fowleri* ortholog was not amplified by the same primer set.