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Effector Binding to the LysR-Type Transcriptional Regulators, BenM and CatM. Momany, C., Haddad, S., Clark, T., Ezezika, O., Neidle, E., Depts. of Pharmaceutical & Biomedical Sciences & Microbiology, Univ. of Georgia, Athens, GA 30602.

BenM and CatM are LysR-type transcriptional regulators of the soil bacterium *Acinetobacter* that regulate the expression of more than a dozen genes for the degradation of aromatic compounds. BenM responds synergistically to two effectors, benzoate and its catabolite *cis,cis*-muconate (CCM), while CatM responds only to CCM. Several structures of the effector-binding domains (EBD) of BenM, BenM-EBD, and CatM-EBD were evaluated with and without effectors. When crystals were incubated with artificial mother liquors containing the ligands, the crystals always cracked, but the remaining chards diffracted X-rays to beyond 2 Å resolution with unit cell dimensions increasing as much as 5 Å in some cases. The effector benzoate bound to a previously unidentified site for LysR-type regulators. Furthermore, in contrast to BenM-EBD, which has a single anion-binding site per monomer in the effector, the unliganded CatM-EBD has several anion-binding sites. CatM clearly differs in the residues that interact with the carboxyl group of the benzoate, but the residues surrounding the pocket that binds the aromatic ring are highly conserved.

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