Cover Picture

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The cover picture shows the cyanobacterial linear peptides dysinosin A (R=H) and chlorodysinosin A (R=Cl), members of the aeruginosin family of cyanobacterial linear peptides. Their structures and absolute configurations were determined by total synthesis and X-ray co-crystallization with the enzyme thrombin. The presence of one chlorine atom in the D-leucine residue of chlorodysinosin A remarkably increases the inhibition potency against thrombin and Factor VIIa relative to dysinosin A. Molecular mechanics simulations starting from the bound conformations of dysinosin A and its chloro analogue suggest a more restricted sampling of conformations for the latter around the χ^1 dihedral angle. The chlorine atom in chlorodysinosin A may also contribute to lipophilicity, leading to a better fit in the hydrophobic S_3 pocket, as illustrated in the partial X-ray co-crystal structure. The background of the picture shows Lizard Island in North Queensland, Australia, where dysinosin A was isolated from the Dysideidae family of marine sponges. For details, see the Review by S. Hanessian on p. 1300 ff.