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Catch bonds enable bacterial and cell adhesion under flow

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How well does our intuition serve us when trying to prevent bacterial infections? If receptor-ligand complexes are being pulled apart by tensile forces, conventional wisdom implied that the lifetime of the complex would be shortened. As supported by many recent biophysical studies, force indeed accelerates the probability of a ligand slipping out of the binding pocket. In contrast to these so-called *slip bonds*, recent data show that some receptor-ligand complexes can form catch bonds whose lifetime increases under tensile force. Some bacteria and cells take advantage of catch bonds to adhere to surfaces under fluid flow conditions. We will explore where such *catch bonds* can be found, how they work and how cells exploit them for a multitude of tasks.

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