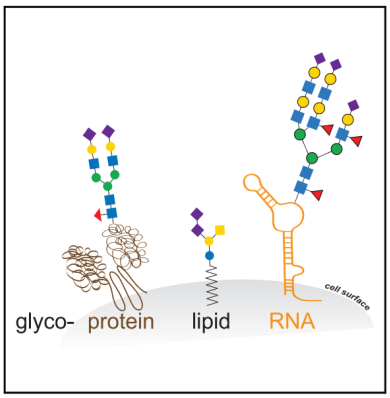
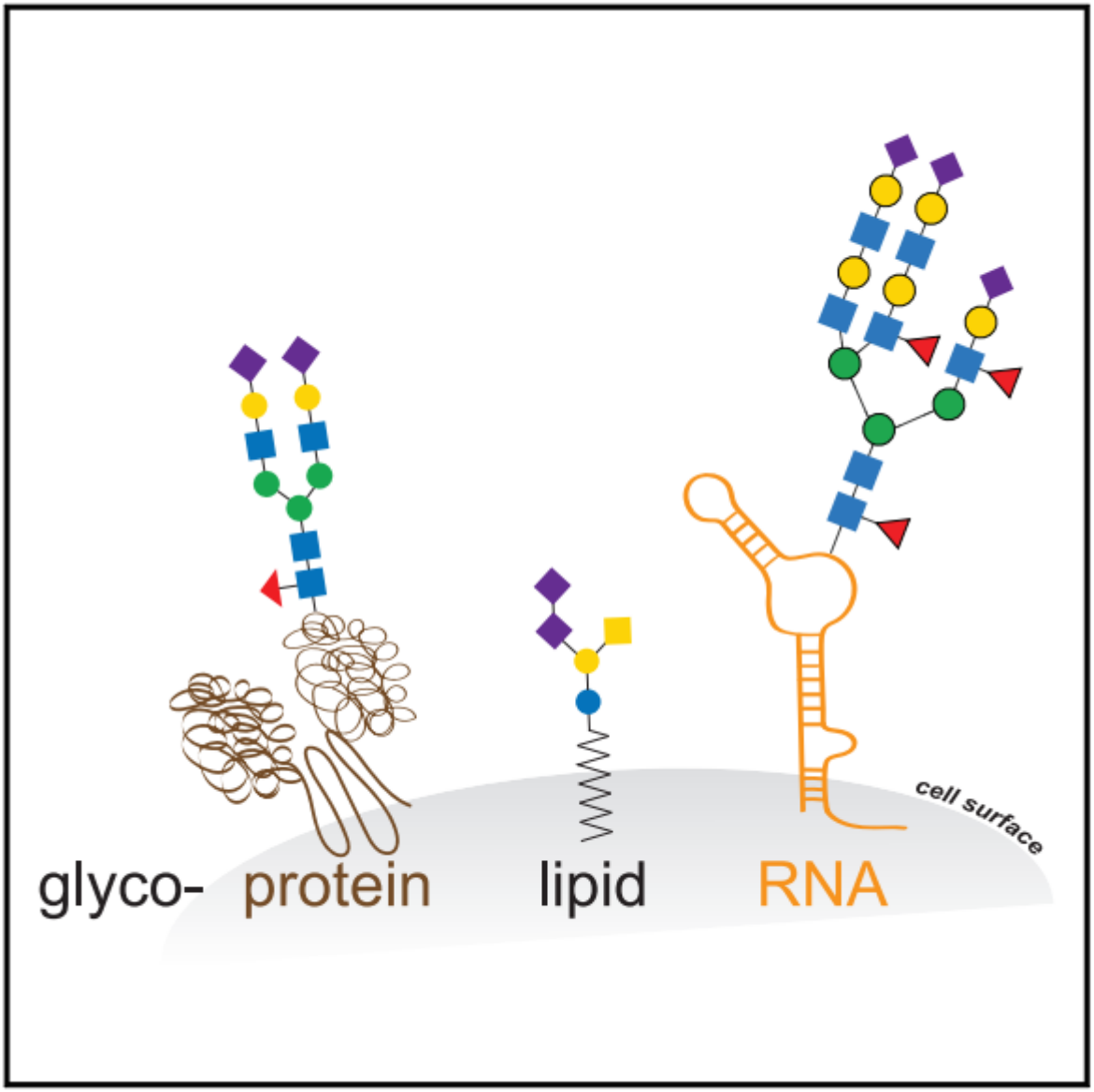


Small RNAs are modified with N-glycans and displayed on the surface of living cells

Description

In contrast to lipids and proteins, RNA was never considered to be a significant target of glycosylation. The authors of the article challenge this view with evidence that mammals use RNA as a third scaffold for glycosylation. Using a battery of chemical and biochemical approaches, they found that conserved small noncoding RNAs bear sialylated glycans. These ‘‘glycoRNAs’’ were present in multiple cell types and mammalian species, in cultured cells, and in vivo. GlycoRNA assembly depends on canonical N-glycan biosynthetic machinery and results in structures enriched in sialic acid and fucose. Analysis of living cells revealed that the majority of glycoRNAs were present on the cell surface and can interact with anti-dsRNA antibodies and members of the Siglec receptor family. Collectively, these findings suggest the existence of a direct interface between RNA biology and glycobiology, and an expanded

role for RNA in extracellular biology



R.A. Flynn, K. Pedram, S.A. Malaker, P.J. Batista, B.A.H. Smith, A.G. Johnson, B.M. George, K. Majzoub, P.W. Villalta, J.E. Carette & C.R. Bertozzi
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Category

1. News