Exploring factors influencing biomolecular corona formation beyond nanomedicine composition and structure

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The size and composition of the biomolecular corona critically regulates the biodistribution, cellular uptake, stability, and efficacy of nanomedicines. In light of this, considerable efforts over the past two decades have focused on understanding how nanomedicine composition, structure, and surface chemistry influence biomolecular corona formation. However, other less-explored factors also dictate biomolecular formation, including administration route, disease state, and various personalised factors. Subsequently, this study aims to provide insight into how these important factors regulate biomolecular corona formation and their ultimate effect on nanomedicine biodistribution, cellular uptake, stability, and efficacy. The findings from these investigations point towards potential avenues for personalised nanomedicine approaches based on the optimal absorption of a biomolecular corona.