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(57) Abstract: The present invention provides compositions and methods to facilitate the identification of compounds that are capable of interacting with a biological macromolecule of interest. In one aspect, a composition is provided that comprises an array of one or more types of chemical compounds attached to a solid support using isocyanate or isothiocyanate chemistry, wherein the density of the array of compounds is at least 1000 spots per cm². In general, these inventive arrays are generated by: (1) providing a solid support, wherein said solid support is functionalized with an isocyanate or isothiocyanate moiety capable of interacting with a desired chemical compound to form a covalent attachment; (2) providing one or more solutions of one or more types of compounds to be attached to the solid support; (3) delivering said one or more types of compounds to the solid support; and (4) catalyzing the attachment of the compound to the solid support, whereby an array is formed and the array of compounds has a density of at least 1000 spots per cm². In another aspect, the present invention provides methods for utilizing these arrays to identify small molecule partners for biological macromolecules of interest.



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