

Figure 2

Combinatorial synthesis on solid supports using the split-resin method. Peptide-synthesis beads are divided into specific reaction vessels for chemical-coupling steps, then combined, mixed to homogeneity and subdivided for subsequent reactions.

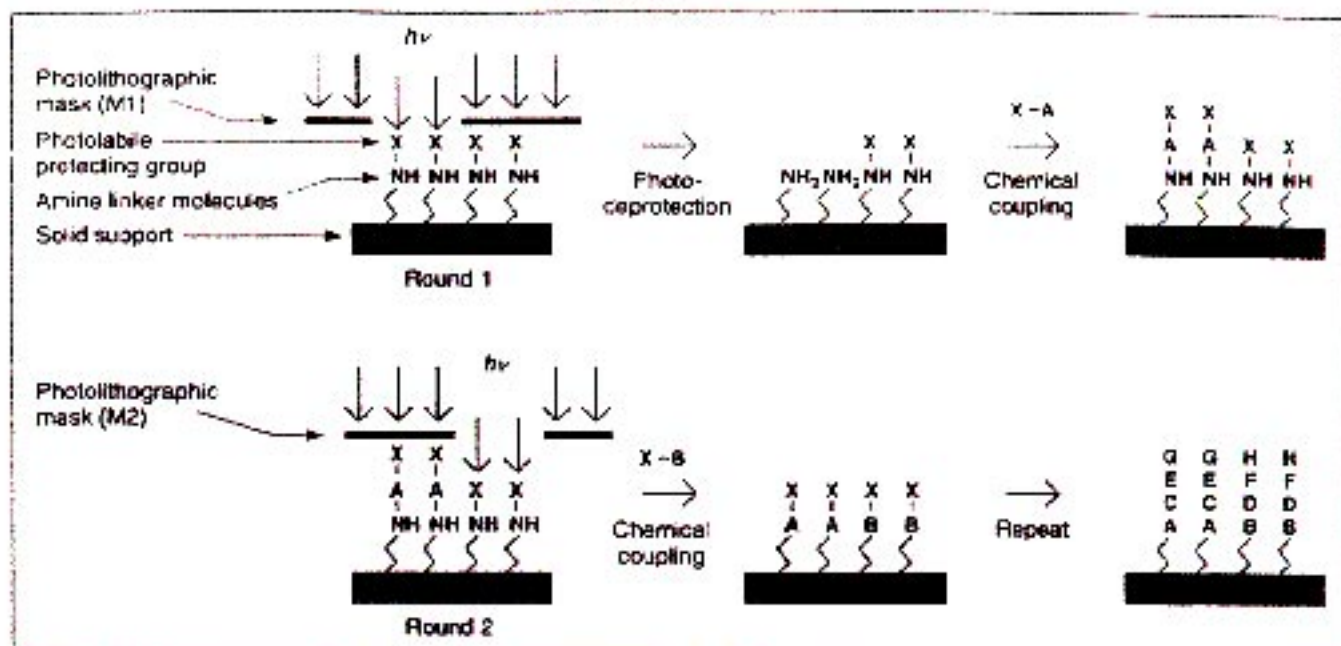


Figure 3

Light-directed parallel chemical synthesis. A surface is derivatized with amine linkers that are blocked by a photochemically cleavable protecting group. The surface is selectively irradiated with light to liberate free amines, which can be coupled to photochemically blocked building blocks. The process is repeated with different regions of the synthesis surface being exposed to light, until a desired array of compounds is prepared. The patterns of photolysis and the order of addition of building blocks define the products and their locations.

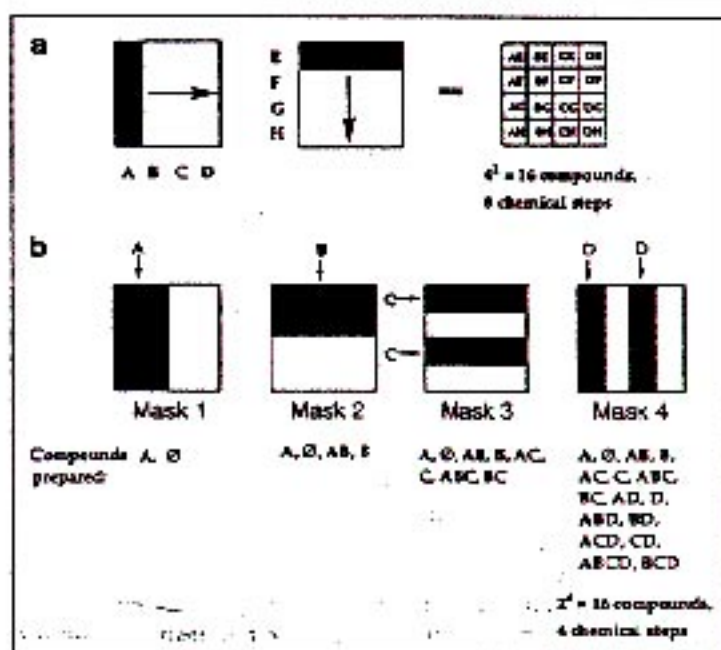


Figure 4

Synthesis strategies. (a) Orthogonal-stripe method. Using a strategy similar to the split-resin method (Fig. 2), a layer of monomers is formed by photolysing stripes for each building block. Dimers are formed by photolysing stripes orthogonal to the first set, preparing n^2 compounds in $2n$ chemical steps. (b) Binary synthesis. Half of the synthesis surface is photolysed during each coupling step, with subsequent photochemical steps overlapping one-half of the previous synthesis space. With this strategy, 2^n compounds are made in n chemical steps.