

Part 2 – The Manufacturing Process

(5) What is the wafer made of?

(6) What is the purpose of the silane coating of the wafer?

(7) What is the purpose of the linker – photosensitive molecule conjugate?

(8) What occurs when the UV light gets through the mask and hits the wafer?

(9) How do the different probes in the same feature compare (once finished)?

(10) When nucleotides are washed over the wafer after the UV light exposure, what happens? How does this “build” the DNA probe?

(11) From the point after the addition of the linker molecule, summarize the three steps in the process of building the nucleotide chains which will become the probes on the features.

(12) What is the purpose of the protection side group (or “P”)?

(13) About how many steps does it take to build the millions of DNA probes?
How is this possible?

(14) What happens when a nucleotide does not add when it should? How is this problem overcome?

(15) What happens once the final nucleotide wash is added and the synthesis completed?

Part 3 – Building In Bulk

(16) What are the two main parts to manufacturing GeneChip microarrays? In general, what happens in each part?

(17) Why must the mask be precisely placed on top of the wafer during photolithography?

(18) What happens once the wafer is complete?