

Screen 4

### **RAG1 and RAG2 genes**

#### **Chromosome 11**

These linked genes work as a pair to activate the recombination of the V and J variable segments in the immunoglobulin genes.

RAG1 is involved in the recognition of the specific site on the antibody gene that will be worked on.

Screen 5

### **Antibody Light Chain Gene**

#### **Chromosome 22**

This gene contains V (variable, J (joining) and C (constant) segments.

Recombination of the DNA joins a single V segment with a single J segment.

Later, in the mRNA, these join with the C segment

There are 40 V segments and 5 J segments, and 2 sets of light chain genes, giving  $40 \times 5 \times 2 = 400$  possible light chains.

Each B cell contains 1 of these 400 possible combinations.