CLAIMS

1. A process for determining how immunoresponsive an individual is comprising detecting the presence or absence of at least 10 chromosome interactions represented by any 10 probes shown in Table 1 or 16, and wherein the process comprises detecting the presence or absence of marker PDCD1LG2_9_5495992_5498009_5563479_5572986_RR corresponding to probe ACAGTTATTAGAAAAATAAAACATTTGGTCGAACAGCAAAGAGAAGATATTCAACTGCGA.

2. A process according to claim 1, wherein the presence or absence of at least 10, 20, 30 or 40 of the chromosome interactions represented by the probes in Table 16 is determined.

3. A process according to any one of the preceding claims in which the chromosome interactions are typed:
- by detecting the presence or absence of a DNA loop at the site of the chromosome interactions, and/or
- detecting the presence or absence of distal regions of a chromosome being brought together in a chromosome conformation, and/or
- by detecting the presence of a ligated nucleic acid which is generated during said typing and whose sequence comprises two regions each corresponding to the regions of the chromosome which come together in the chromosome interaction, wherein detection of the ligated nucleic acid is preferably by using either:
(i) a probe that has at least 70% identity to any of the specific probe sequences mentioned in Table 1, and/or (ii) by a primer pair which has at least 70% identity to any primer pair in Table 4; or
(a) a probe that has at least 70% identity to any of the specific probe sequences mentioned in Table 13, and/or (b) by a primer pair which has at least 70% identity to any primer pair in Table 13, or
(α) a probe that has at least 70% identity to any of the specific probe sequences mentioned in Table 16, and/or (β) by a primer pair which has at least 70% identity to any primer pair in Table 17.

4. A process according to any one of the preceding claims, wherein:
- the process is carried out to select an individual for a medical treatment; and/or
- the immunoresponsiveness is responsiveness to immunotherapy or an immunocheckpoint therapy; and/or
- the immunoresponsiveness is responsiveness to cancer immunotherapy, and/or
- the process is carried out to determine immunoresponsiveness at one or more defined time points.

5. The process according to claim 4, wherein at least one of the time points is during the course of therapy.

6. A process according to any one of the preceding claims which is carried out to select whether or not an individual will receive an immunotherapy, wherein the immunotherapy preferably comprises a small molecule immunotherapy, antibody immunotherapy or cell immunotherapy.

7. A process according to claim 3, wherein determining the presence or absence of the chromosome interaction comprises specific detection of the ligated product by quantitative PCR (qPCR) which uses primers capable of amplifying the ligated product and a probe which binds the ligation site during the PCR reaction, wherein said probe comprises sequence which is complementary to sequence from each of the chromosome regions that have come together in the chromosome interaction, wherein preferably said probe comprises:
an oligonucleotide which specifically binds to said ligated product, and/or
a fluorophore covalently attached to the 5' end of the oligonucleotide, and/or
a quencher covalently attached to the 3' end of the oligonucleotide.

8. A process according to claim 7, wherein:
said fluorophore is selected from HEX, Texas Red and FAM; and/or
said probe comprises a nucleic acid sequence of length 10 to 40 nucleotide bases, preferably a length of 20 to 30 nucleotide bases.

9. A process according to any one of the preceding claims wherein the immunoresponsiveness is to a PD-1 inhibitor or PD-L1 inhibitor.

10 A process according to any one of the preceding claims wherein the immunoresponsiveness is to an antibody specific for PD-1 or PD-L1.