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Mark Henderson, London.*

Tumours will soon be treated according to their genetic code rather than their position in the body.

The complete genetic codes of two human cancers have been mapped for the first time. The move could herald a medical revolution in which every tumour can be targeted with personalised therapy. The exhaustive genetic maps, which catalogue every DNA mutation found in two patients' tumours, will transform treatment of the disease. It has been described as the most significant milestone in cancer research in more than a decade.

Scientists predict that by about 2020 all cancer patients could have their tumours analysed to find the genetic defects that drive them. This information would then be used to select the treatments most likely to work. Insights from the genomes will lead to the development of powerful drugs to target DNA errors that cause cancer and highlight ways in which the disease can be prevented. Cancers would be diagnosed and treated according to their genetic profiles rather than their position in the body.

"The pace at which genomics is moving is probably the most exciting thing that's gone on in cancer research in more than a decade," said John Bell, president of the Academy of Medical Sciences. "These cancer genome projects are a major landmark, as significant as the sequencing of the human genome itself."

The research was led by Mike Stratton, of the Cancer Genome Project at the Wellcome Trust Sanger Institute near Cambridge, England. He said the findings would transform the way we see cancer. "These catalogues of mutations are telling us about how the cancer has developed, so they will inform us on prevention. "They tell us about all the processes which are disrupted in cancer cells, which we can try to influence through our treatments.

"So this is a really fundamental moment in the history of cancer research. I can envisage a time a decade or more hence when...every cancer patient will have one of these charts."

The new maps, which are published in the journal *Nature*, plot this genetic chaos in unprecedented detail for the tumours of two cancer patients. One had small-cell lung cancer; the second had malignant melanoma, the deadliest form of skin cancer.

Mark Walport, director of the Wellcome Trust, which funded the research, said "This is the first glimpse of the future of cancer medicine, not only in the laboratory, but eventually in the clinic." THE TIMES.