

# The gene that may regrow a lost limb

By **Geoff Marsh**

HUMAN body parts could be regrown in the future using frogs and salamanders, scientists claim.

Both sets of amphibians can reproduce major body parts such as severed tails and limbs. And experts say that, given humans share 85 per cent of the same genes as frogs, "master genes" for regrowth could possibly be identified, studied and applied.

The latest theory is to be explored as part of a £10million study - launched in London yesterday - by the Healing Foundation and the University of Manchester.

Professor of Tissue Regeneration Enrique Amaya, who is leading the 25-year-long project, said he hoped the study would lead to new treatments for amputees, trauma survivors and those recovering from surgery "within a generation". Research has shown that salamanders can grow entire new limbs in less than a month due to cells known as blastema, which can regenerate body parts.

And professor Amaya said tadpoles whose tails were amputated grew exact copies in nine days. However, they lost the ability to regenerate in adulthood.

He added that human embryos could also heal wounds without scarring but again lost that ability before birth. "If you take a baby who is still inside the mother's womb - up to six months gestation - and one does surgery on that baby, the child will be born without any sign of scarring," he said. He went on to say that by studying frog embryos, scientists will "try to identify the genomes involved in wound healing".

Plastic surgeon Gus McGrouther, chairman of Plastic and Reconstructive Research at Manchester University, said the research was the next scientific step for those affected by disfigurement.

It was also welcomed by Paul Kelly, 50, who fell into an industrial cement mixer three-and-a-half years ago, losing a leg below the knee, severing his left hand at the wrist and seriously damaging his right hand.

Mr Kelly, from Chorley near Preston, said: "It would have impacted enormously on my particular accident. Speaking as a triple amputee I think it is absolutely amazing."



**STUDY: Professor Amaya**