

Discrimination down to a science

GATTACA

A film written and directed by Andrew Niccol

Columbia Pictures: 1997

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Inside a darkened medical laboratory, the camera hovers over the shoulder of a young scientist as he stares intently at the fluorescing purple bands of DNA in the gel in front of him. Suddenly, he leans back and cries "Bingo!" A combination of *in vitro* fertilization and state-of-the-art DNA testing has yielded an eight-cell human embryo possessing the ideal combination of genetic markers — one that could not only spare the child-to-be from developing the fatal genetic illness running in its family but, even more remarkably, provide a lifeline for the family's oldest child who is certain to die unless a matching bone marrow donor is found.

No, this is not a scene from the new science-fiction thriller *GATTACA*, but a very real example from a recent television documentary of the power of modern medical technology, whereby techniques such as preimplantation genetic diagnosis can be used to select embryos untainted by one of at least a dozen fatal disease genes. The technique has produced more than a hundred healthy births so far (although, as in the case described above, embryo reimplantation frequently fails).

Now imagine this kind of technology carried to eugenic extremes, where the well-off can check off a host of desired traits while the embryo is still bathing in the Petri dish. In *GATTACA*, Andrew Niccol's disturbing vision of the not-too-distant future, the genetically elite 'valids' are a group of super-intelligent, buff specimens whose impressive 'genetic quotient' reflects the removal of known deleterious traits (aggressive tendencies, baldness) and the enhancement of others (usually height but, for the budding concert pianist, a pair of extra fingers). By contrast, naturally conceived 'in-valids' — their assorted neurological and developmental deficiencies diagnosed immediately at birth — are consigned to the genetic ghetto, uninsured and unemployed except for menial tasks.

Among them is Vincent (Ethan Hawke), whose congenital heart condition and low life-expectancy exclude him from joining the flourishing space programme. Undeterred, Vincent strikes a deal with Jerome (an excellent Jude Law), a crippled former athlete, to assume his 'valid' identity (becoming a 'de-gene-erate' to use the vernacular). As if orthopaedic surgery to add a few inches wasn't enough, Vincent's deceit must work at the DNA level, thus requiring him to carry Jerome's blood, urine, fingerprints — even



Splice girl: Uma Thurman would like to rearrange her DNA in *GATTACA*.

dandruff! Our hero pulls it off, but his rapid ascension up the ranks of the Gattaca Corporation, where he aspires to navigate the first manned mission to Titan, is suddenly jeopardized when the mission director is bludgeoned to death, leaving Vincent the prime suspect courtesy of an incriminating eyelash. As he dodges the police, Vincent seeks help in the form of his beautiful colleague Irene (Uma Thurman), who has a genetic make-up problem of her own to contend with.

GATTACA proclaims that "there is no gene for the human spirit", but the film will inevitably draw flak for fostering the erroneous impression that DNA and destiny are so closely intertwined. For example, recent studies clearly show that the influence of specific genes on personality traits such as 'novelty seeking' and 'neuroticism' is tangible but quite restricted, and that environmental cues are at least as important as the sum of the (mostly unknown) hereditary factors. The evidence points to genetic predisposition, but not predetermination.

In other respects, *GATTACA* is a surprisingly pedestrian affair given the controversial advertising campaign heralding its release ("Children made to order... it is now possible to engineer your offspring"). Niccol won't reveal how he thinks the gene selection process might work (no cute *Jurassic Park*-style cartoons here) or how one can obtain an instantaneous DNA readout from a single hair as easily as picking up a prescription (gene chips, perhaps?). What is more, Vincent's subterfuge would surely have been exposed if the intensive security collected buccal swabs instead of blood samples.

Nevertheless, *GATTACA* spotlights some thorny issues regarding genetic discrimina-

tion and technology in this, the tenth anniversary of the first funding for the Human Genome Project. Just how far might prospective parents be willing to go if offered the chance to shape their child's physical and psychological profile before birth? The exercising of parental choice in gender selection is hideously apparent in those parts of the world that practise infanticide. But in developed countries, an estimated 2,000 babies of preferred gender have been born by separating X- and Y-chromosome sperm before *in vitro* fertilization. Although mostly used to avoid sex-linked disorders, this service is also available for what one centre blandly terms "the purpose of family balancing".

Then there is the matter of intelligence. One clinic in California has produced hundreds of babies from the sperm of Nobel laureates despite criticism from the likes of the late Nikolaas Tinbergen, who observed that the narcissism of his fellow Nobelists "raised doubts about their possession of the very asset they want to pass on to their offspring: intelligence". Even so, James Watson probably got it right when he said: "If we could honestly promise young couples that we knew how to give them offspring with superior character, why should we assume they would decline?"

A final disappointment in *GATTACA* is the under-developed role of the magnificent Uma Thurman. An admiring former director of Ms Thurman said once: "She's like Garbo. Feature for feature it shouldn't work, but put them all together and you get this incredible face." There's a moral in there somewhere. □
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