

## CLONING GOES TO THE MOVIES

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### Abstract

Public attitude research shows that one of the major sources of information on human reproductive cloning is movies. Traditionally understanding of new and emerging technologies has come through the mass media, but human cloning, being so widely addressed through the popular culture of movies, is more effectively defined by Hollywood than the news media or science media. But how well is the science, or social issues, of cloning portrayed in movies? Using short film clips and references to key movies, including *The Boys from Brazil*, *The Island*, *Godsend*, *Multiplicity*, *The Sixth Day*, *the Fifth Element* and the Korean film *Yesterday*, this session will analyse the key messages relating to human reproductive cloning that are being portrayed through the medium of cinema, including the science, its regulation and issues of social trust, which will be compared with attitudes towards human cloning obtained from public attitude research.

**Keywords:** Cloning, Hollywood, movies, public attitudes, evil scientists

### Text

If you believe what you read in the tabloid newspapers, the first two human clones came into existence in 2002 – one procedure was performed by Italian doctor Severino Antinori, and the other by Clonaid, the company formed by members of the Raelian movement.

If you follow the scientific literature, however, no human clones have yet been born, as cloning, in addition to being illegal in most countries, is not yet advanced enough to succeed with higher primates.

Yet cloning is all around us. Cloning of plants has been happening through taking cuttings for many hundreds of years. Cloning of animals has been happening since 1952 when tadpoles were cloned, followed by a cat, dog, mice, pigs, sheep, cows and a rhesus monkey. And cloning of human beings is a regular staple of Hollywood films. Over twenty films in the last 15 years alone have addressed human cloning.

Human reproductive cloning may not yet be possible in practice, but it is very real in the public's imagination.



Image 1. Dr Evil and his clone Mini Me from the Austin Powers movies



Image 2. A newspaper headline of Dr Antinori claiming the world's first human clone.

Traditional understanding of new and emerging technologies comes through the mass media, but human cloning, being so widely addressed through the popular culture of movies, is more defined by Hollywood than the news or science media. A key question to examine therefore is how well is the science, or social issues relating to cloning, being portrayed in such movies?

This study looks at 30 movies, made between 1973 and 2005, that address human reproductive cloning, and it compares the quality of the science being portrayed in them and the associated key messages relating to trust in science and regulation. The findings are then compared to public attitudes towards cloning, to determine if there are any correlations.

The movies have been divided into five distinct categories.

**1. Contemporary Social Realism** – those set in, or very near to, the present, and realistic.

- *The Boys From Brazil* (1978)
- *Jurassic Park* (1993)
- *The Lost World: Jurassic Park* (1997)
- *Godsend* (2004)

**2. Future Social Realism** – those set in the future, but are presented as realistic.

- *The 6th Day* (2000)
- *Yesterday* (2002)
- *The Island* (2005)

**3. Science Fiction/Fantasy** – those set “long, long ago in a galaxy far away” or in the far future.

- *Judge Dredd* (1995)
- *Neon Genesis Evangelion* (1995-1996)
- *The Fifth Element* (1997)
- *Alien Resurrection* (1997)
- *Star Wars: Attack of the Clones* (2002)
- *Star Trek: Nemesis* (2002)
- *Natural City* (2003)

**4. Comedy** – those that seek to use cloning as the cornerstone of comedy in the film.

- *Sleeper* (1973)
- *Multiplicity* (1996)
- *Austin Powers: The Spy Who Shagged Me* (1999)/*Austin Powers in Goldmember* (2002)
- *Repli-Kate* (2002)
- *Clone High* (2002)

**5. Gone and forgotten** – those films on cloning that did not rate well at the box office, or are rarely seen anymore.

- *Resurrection of Zachary Wheeler* (1971)
- *Cloned* (1977)
- *The Clones of Bruce Lee* (1977)
- *The Clonus Horror* (1979)
- *Anna to the Infinite Power* (1982)
- *Replikator: Cloned to Kill* (1994)
- *The Third Twin* (1997)
- *Shadow Fury* (2001)
- *Blue Print* (2002)
- *The Adventures of Pluto Nash* (2002)

While primarily US-produced, the above list includes two movies made in Korea (*Yesterday* and *Natural City*), one made in Hong Kong (*The Clones of Bruce Lee*), one German-Turkish co-production (*Blue Print*) one Japanese Anime series (*Neon Genesis Evangelion*), and one US animated TV series (*Clone High*).

Analysing the movies for which there is data on cost and return, 16 films dealing with cloning cost in excess of US\$1 billion to produce, at an average cost of US\$67 million per film – an enviable amount compared to most science communications budgets.

Table 1: Movies on cloning, their takings and budgets

Released	Movie Name	Worldwide Takings	Budget
1973	<i>Sleeper</i>	\$18,344,729*	\$2,000,000
1978	<i>The Boys from Brazil</i>	\$19,000,000*	\$12,000,000
1993	<i>Jurassic Park</i>	\$920,100,000	\$63,000,000
1995	<i>Judge Dredd</i>	\$85,000,000	\$113,487,000
1996	<i>Multiplicity</i>	\$20,133,326*	\$45,000,000
1997	<i>The Fifth Element</i>	\$263,900,000	\$95,000,000
1997	<i>The Lost World: Jurassic Park</i>	\$786,686,679	\$75,000,000
1997	<i>Alien: Resurrection</i>	\$160,700,000	\$60,000,000
1999	<i>Austin Powers: The Spy Who Shagged Me</i>	\$309,600,000	\$35,000,000
2000	<i>The 6th Day</i>	\$34,543,701	\$82,000,000
2002	<i>Austin Powers in Goldmember</i>	\$213,079,163	\$63,000,000
2002	<i>Star Wars: Attack of the Clones</i>	\$648,200,000	\$115,000,000
2002	<i>The Adventures of Pluto Nash</i>	\$7,094,995	\$100,000,000
2002	<i>Star Trek: Nemesis</i>	\$67,312,826	\$60,000,000
2004	<i>Godsend</i>	\$16,910,708	\$30,000,000
2005	<i>The Island</i>	\$160,799,026	\$120,000,000
	<b>TOTALS</b>	<b>US\$3,731,405,153</b>	<b>US\$1,070,487,000</b>
	<b>AVERAGE</b>	<b>US\$233,212,822</b>	<b>US\$66,905,000</b>

(\* US figures only available)<sup>1</sup>

The concern that these movies have a large impact on people’s attitudes is exemplified by the US bioethicist, Arthur L Caplan, who said of the movie *Godsend*, “Thanks Hollywood. Just as people were beginning to understand cloning, you have put greed before need and made a movie that risks keeping ordinary Americans afraid and patients paralyzed and immobile for many more years.”<sup>2</sup>

He also stated that a problem with being given misinformation about cloning was that it polluted the debate about making cloned embryos for research, particularly stem-cell research.<sup>3</sup>

According to surveys conducted by Biotechnology Australia, the Hollywood media is most cited as a source of information on human reproductive cloning, and focus group discussions indicate that those films that depict realism in them have more impact than those that are satirical or science fiction and fantasy.

One focus group respondent even stated: “I saw a movie once, and it was sort of a very factual movie, where this couple cloned this child, and the child was traveling fine, until it got to about 14 or 15 years of age, and this child was gifted, super intelligent and had a lot of things going for it, and then all of the sudden the whole body system went ballistic, it went through an aging process, it started getting all these diseases in the world and that kid died... They based that movie on real events they could see happening.”<sup>4</sup>

The reference appears to be towards the film *Godsend*, which is a fictitious film, although it went to great pains through its promotional activities to depict a medical institute with its own website and hotline where human cloning was taking place.<sup>5</sup> So if social realism films can sometimes be confused with factual representations of cloning, it is therefore important to analyse the key messages being portrayed in those films in particular.

The following section provides a brief plot synopsis of these films and rates the accuracy of the science and the morals and regulation portrayed in them.

## 1. Contemporary Social Realism Movies



### 1.1 *The Boys from Brazil* (1978)

Based on the novel by Ira Levin, Joseph Mengele, the Nazi 'Angel of Death', has engineered a project to clone Adolph Hitler, from a remote region of Brazil. 94 cloned boys have been born around the globe, and recognising the importance of environmental inputs to the formation of a child's personality, the parents have been chosen for their similarity to Hitler's (aged father and young mother, same education levels etc). As the boys turn 15-years-old, the father in each family must be killed, in what appears to be an accident – as Hitler's own father had died. This, however, becomes the trigger for the unraveling of the plot.

Key themes: While the science in the film is very accurate, and even includes a scene in a German research institute where the process of cloning is meticulously explained using rabbits, the science of human cloning is in the hands of a very evil scientist, willing to murder in the pursuit of his immoral goal.

### 1.2 *Jurassic Park* (1993) and *The Lost World: Jurassic Park* (1997)

Based on the books by Michael Crichton the movies are based on the premise that dinosaurs have been cloned from DNA found in dinosaur-biting insects that have been preserved in amber. Although not dealing with human reproductive cloning, the film has had enormous impact on people's understanding of the potential of cloning and what the science involves. In the film the dinosaurs, only females, are being created on a remote island that is planned to be a sanctuary and tourist destination – but things go wrong. Some dinosaurs spontaneously become male (explained by the fact that gaps in the dinosaur DNA were filled by using frog DNA). Then there is a security breach by a sinister underling, intent on stealing and selling some of the dinosaur DNA to competitors, and the dinosaurs begin escaping and attacking people. All the good intentions of the good scientist, played by Richard Attenborough, go astray, as predicted in the oft-quoted line: "Life will find a way".

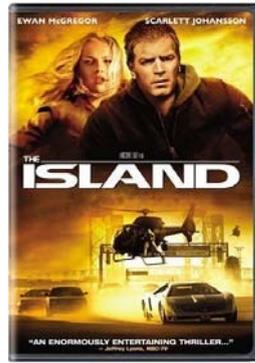
Key themes: The films depict a good scientist whose work is corrupted by others. The science is fairly accurate, though it takes some creative leaps, such as the use of frog DNA with dinosaur DNA. The moral tone of the films is that tinkering with nature is obviously dangerous.

### 1.3 *Godsend* (2004)

Paul and Jessie's child, Adam, died in an accident when he was eight-years-old, but a kindly and caring scientist, played by Robert de Niro, offers to replicate their beloved son for them through cloning. Though illegal, the couple agree and soon give birth to another son, identical to their first. But as he reaches the age at which the first son died, strange things begin to happen. The movie has a strong sense of horror/thriller about it. It is slowly revealed that the scientist placed some DNA from his own dead son into the couple's child, to bring back his son too. Interestingly, there are several optional endings on the DVD version of the film, so the viewer can actually choose an ending that is happy or tragic, depending on how they want the story to end.<sup>6</sup> The film's promotion features the strap line: Evil is here!

Key themes: Very accurate science, and accurate portrayal of cloning being illegal, but the movie shows it is easy to get around this. The scientist is depicted as pretending to be good, but is actually evil and immoral, strongly driven by personal gain.

## 2. Future Social Realism



### 2.1 *The 6th Day* (2000)

Beginning with the benign cloning of deceased family pets, this becomes a fast-paced action thriller to uncover the fact that a large corporation is illegally cloning humans (including the head of the corporation). Adam Gibson (played by Arnold Schwarzenegger) is accidentally cloned, after he is thought to have died in a helicopter accident, leading to two Adam Gibsons (which means two Arnold Schwarzeneggers)– one of which must be murdered to cover up what is happening.

Key themes: The science is very misleading, as full human clones are created in a very short space of time, with a person's DNA being encoded into a 'blank' body, and the memories then being downloaded from a mini-CD. The science is undertaken by well-meaning scientists, but it is all funded and controlled by the evil director of a large immoral corporation.

### 2.2 *Yesterday* (2002)

In the year 2020 unification of the Korean peninsula has occurred. The film is an action thriller with a special police branch trying to solve the killing of prominent scientists. What appears to be a case of domestic terrorism turns out to be a cover up of a large cloning experiment.

Key Themes: Cloning is being done for sinister purposes and those behind it will go to extreme lengths to cover it up.

### 2.3 *The Island* (2005)

Lincoln Six-Echo lives in a large utopian facility in the year 2019, and he dreams of winning a chance to travel to 'the Island' – the last uncontaminated place on earth. But in reality, he and the hundreds of people living in the facility with him are clones, created to provide body parts for their rich human originals. Lincoln Six-Echo escapes from the facility, with Jordan Delta Two, and the film becomes an action chase movie as the corporation that created them seeks to capture or kill them to retain the secret of what they are doing.

Key messages: The science is not accurate, as full humans are cloned, and the science is controlled by a large and evil corporation, who have no hesitation in denying human rights to the clones they create in pursuit of profits.

### 2.4 *Blue Print* (2002)

One social realist film that deserves special mention – although it has been categorized in gone and forgotten category due to its limited distribution – is *Blue Print*. In the film, Iris, a renowned pianist, finds she has Multiple Sclerosis, something which will cut her career short. In order to preserve her talents, she approaches a fertility expert to have herself cloned. She gives birth to her cloned daughter named Siri, who grows up in a remote location in British Columbia. The film looks at the impact of nature and nurture on whether Siri wishes to turn her talents to music as her mother has done or not. A very thoughtful film, though not one that achieved a wide distribution.

Key Themes: The science is very accurate, with the cloned daughter being implanted in the mother to be born. The relationship between the mother and daughter, and how being a clone of one's mother might impact upon a person are the key issues explored.

With the exception of *Blue Print*, which provides a considered reflection on human cloning, all the social realism films depict mixed messages about the science of cloning, though even when accurate it is often simplified greatly.

Squeezing a complex science and associated ethical issues into two hours or less, alongside plot, character development and action, obviously forces film-makers to take short cuts with the science.

The predominant message from the realism films is that cloning is conducted by evil scientists or immoral corporations, without effective regulation. This aligns closely with the public attitudes found in the study conducted by Biotechnology Australia, which showed that people felt the science of cloning was being pursued for no justifiable reason, but purely in the name of science.<sup>7</sup>

Added to this is the high profile controversy of South Korean researcher Hwang Woo-Suk, having falsified data, and there is concern that the high public condemnation and disrepute of human reproductive cloning will flow on to all forms of research that involve some type of cloning. The screenwriter of the film *Godsend*, Mark Bomback, responded to criticism of the film's portrayal of science, from *Nature*, saying his film should not be understood as a critique of science or an attack against cloning human embryos for research. "It would mortify me if it was used to condemn stem cell research," he said.<sup>8</sup>



Image 3. A Clone being produced in *the Island*  
 Image 4. Young Adolf Hitler Clone from *the Boys from Brazil*

### 3. Other Cloning Films



Looking at the science fiction/fantasy films together, the science is generally good, but again tends to have been undertaken for dubious moral purposes. Little attention is paid to individual scientists in these films, as the science tends to be undertaken by large organizations. The only film in this category that shows a benign form of cloning is *the Fifth Element*, when the 'supreme being' is cloned from the remains of her hand. *Star Wars: Attack of the Clones* portrays the creation of a cloned army through mass cloning, and the Korean film *Natural City*, which has been closely compared to the ground-breaking 1982 film *Blade Runner*, has clones that are produced for menial labour and are treated as second-class citizens.

Cloning in these films tends to be very advanced and conducted for sinister reasons. In *Alien Resurrection*, the lead character, Ripley, has been cloned to separate her DNA from an Alien's – which is showed in a room full of preserved half-Ripley half-Alien creatures.



In the satire and comedy films cloning is generally undertaken to generate a humorous situation. These include an overworked family man making many clones of himself to fulfill all his roles in life in *Multiplicity*, and a lab technician cloning his dream woman and then teaching her to behave like one of the boys in *Repli-Kate*. There are few evil

scientists in these films, more often well-meaning but unaware of the trouble they are causing. An exception to this is, of course, Doctor Evil, from the Austin Powers films, whose clone is a miniature version of him – Mini Me. The science of cloning is rarely accurate in these comedy films, with full-grown clones being produced that are the same age as the original, and there is next to no regulation or control over the production of clones.

Amongst these films *Clone High* deserves a special mention. The MTV animated series is set in a high school being run as a government experiment where all the teenagers are clones of famous people – such as Cleopatra, Abraham Lincoln, Joan of Arc and Gandhi. The satirical portrayal of Gandhi as the class hyperactive nerd sparked emotive protests in India – where the show is not actually broadcast.



Those films rated as gone and forgotten tend to have little impact on public attitudes, but bear some mention. Most used cloning as central to the plot, even if in a bizarre way, such as in *the Clones of Bruce Lee*, made four years after his death, in which several actors, who almost look like Bruce Lee were employed to play his clones (with the improbably names of Bruce Le, Dragon Lee and Bruce Lai). Again the scientists tend to be sinister and cloning is inaccurate.

Overall scientists hoping to educate the public about the benefits of cloning are facing an uphill battle. According to Charles Colson, writing for Beliefnet, "... it's nearly impossible to name a film where cloning or any other biotech advancement is depicted as unambiguously good."<sup>9</sup>

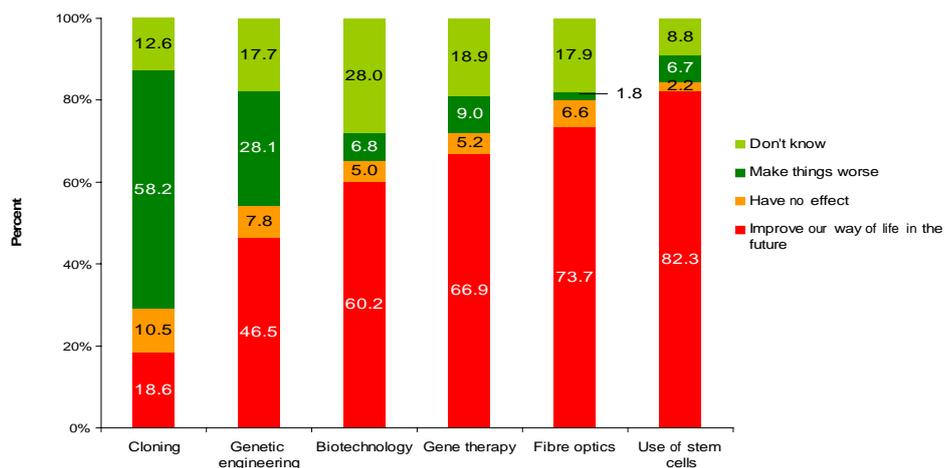


Figure 1 Perceived impact of technologies

However if we look closer at the negative images and stereotypes depicted in these movies, and look at public attitudes, we can see that they actual mirror each other to some extent. The Biotechnology Australia study found that while there was a very high awareness of cloning, with only 2.2% not having heard of the term, over 85% stated that human cloning was not morally acceptable to them. Focus group participants described it as “abhorrent”, “horrific, mind boggling,” and “against nature”.<sup>10</sup>

There was also significant concern about raising clones for body parts, which was seen as raising serious ethical dilemmas. As one focus group participant put it: “You’re cloning a human for it to die healthy. The whole idea is not very humane.”<sup>11</sup>

US science journalist David Ewan Duncan, has said, “Clearly, the never-ending stream of batty scientist flicks reveals an underlying anxiety and fear about the possible dark side of the technology.”<sup>12</sup>

However the negative depiction of cloning in films that play upon the worst stereotypes of evil and uncontrolled scientists fail to challenge us to think seriously about cloning, or to consider the types of questions that would have to be considered if human reproductive cloning ever did become a reality. These include such issues as, what would be the rights of a clone? Who should decide who would be cloned? Or how might clones fit into society?

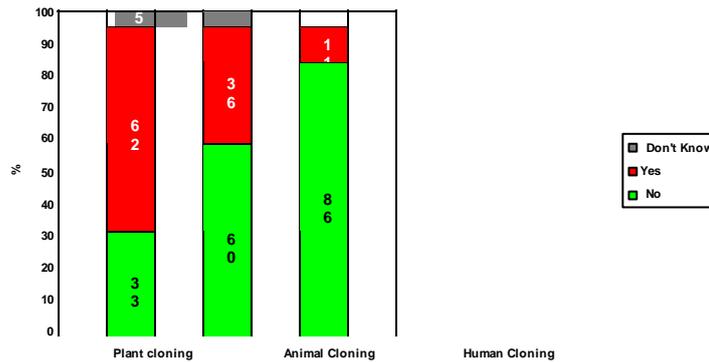


Figure 2. Acceptability of cloning

## Conclusion

Overall, portrayals of the science of cloning in movies is mixed, but very few movies portray cloning as anything other than evil, dangerous, unnatural and uncontrolled. And while there is not enough evidence to suggest that Hollywood cloning films drive public attitudes towards cloning, there are strong correlations between the themes in the films and public concerns. The public has strong concerns about human reproductive cloning, and these are reinforced, or mirrored, by the portrayal of cloning in movies, perhaps explaining why audiences respond to many of these films so well.



Image 5: The types of clones we can expect, according to the way human cloning is portrayed in movies.

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