Laboratory Animals: Biopolitics and the Medical Industry in *Rise of the Planet of the Apes*

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摘要

《猩球崛起》 (2011) 討論實驗室動物問題及此一概念如何與傅柯的生命政治及德希達的「藥物」相互牽絆。本論文旨在將實驗室動物視為政治犯和其他在拘留營中被關押（和殺害）的囚犯歸為同一邏輯。為說明這個論點，論文首先簡要地定義了生命政治的要意，然後根據電影中猿類的表現，將現實世界中實驗室動物的狀態和條件相互聯繫，同時也對製藥業的實驗室動物和電影中的人猿作對比分析。其次，本文通過德希達的藥物，研究了這個行業以及這個概念的源起及其歷史脈絡。在討論這個概念時，本文結論特別強調人類在其他動物的身體上進行實驗以尋找治療疾病的方法時，人類的科學實驗也同時對環境產生既像救治卻又造成巨大的倫理衝突。

關鍵字：猿、生命政治、營地、基因組研究、藥物

ABSTRACT

This paper analyzes *Rise of the Planet of the Apes* (2011) in terms of the issue of laboratory animals and two areas of critical theory: Michel Foucault's theory of biopolitics, and Jacques Derrida's term *pharmakon*, which embraces meanings of both remedy and poison. The main argument of the paper is that laboratory animals are akin to political prisoners and other kinds of prisoners held (and killed) in detention camps. To make that argument, the paper first briefly defines biopolitics and then relates that definition to the status and condition of laboratory animals based on the representation of apes in the film, which are inspired by actual apes in animal laboratories. The paper discusses those apes, too, before turning to the issue of the

pharmaceutical industry's reliance on laboratory animals. The last part of the paper examines that industry through Derrida's *pharmakon*, a concept that traces back to Plato's *Phaedrus*. In discussing that concept, the paper emphasizes that when humans experiment on the bodies of other animals to find cures for diseases, they are dealing in acts of both great remedy and great harm.

Keywords: apes, biopolitics, camps, genome research, *pharmakon*

In 2005, screenwriters Rick Jaffa and Amanda Silver developed a conception for a new sci-fi film, *Planet of the Apes* (2001), eventually titled *Rise of the Planet of the Apes* (2011), directed by Rupert Wyatt. The idea of the adaptation is evoked by news articles on apes raised as humans and advances in genetics. As a consequence, Jaffa conceived an idea for a film about a genetically enhanced chimpanzee raised in a human household. In this case, this essay is going to examine *Rise of the Planet of the Apes*, in terms of the issue of laboratory animals, using two areas of critical theory: Michel Foucault's theory of biopolitics, and Jacques Derrida's term *pharmakon*, a word which means both remedy and poison. The main contention of this paper is that like political prisoners and other kinds of prisoners held (and killed) in detention camps, laboratory animals are treated similarly. To make that argument, this paper first briefly defines biopolitics and then relates that definition to the status and condition of laboratory animals based on the representations of apes in the film, inspired by actual apes in animal laboratories. After the discussion of the apes in the film and apes in laboratories, this paper turns to the issue of the pharmaceutical industry's reliance on laboratory animals and genome research. The last part of this paper examines that industry through Derrida's *pharmakon*, a concept that traces back to Plato's *Phaedrus*. In discussing that concept, this paper emphasizes how humans experiment on the bodies of other animals to find cures for diseases and at the same time are dealing with acts of both great remedy and great harm.

In Lucy Burke's essay, "Imagining a future without dementia: fictions of regeneration and the crises of work and sustainability," she uses *Rise of the Planet of the Apes* as a cinematic text which clearly addresses "the possibilities of neural regeneration or cure in relation to the kind of cognitive impairment associated with dementia" (Burke 2), since Will's father is suffering from Alzheimer's disease, which later on leads to the issue of the pharmaceutical industry. As Céline Lafontaine argues, in contemporary cultural discourse ageing has turned out to be a 'crisis' that "cannot be separated from the emergence of a bioeconomy based on the pharmaceutical

industry, genetic engineering and the development of biomedical research as a whole" (Lafontaine 56). By taking *Rise of the Planet of the Apes* as an example, Burke holds the idea that through biotechnology, Alzheimer's disease can possibly be cured. Based on Burke's thesis, I would like to discuss some other further concepts passim as follows: (1) the necessity of the existence of laboratory animals and their rights; (2) laboratories are like detention camps where animals get held and killed; (3) the act of scientific hubris may result in a counterattack of the ecosystem.

The film, *Rise of the Planet of the Apes*, opens at a genetic therapy pharmaceutical company. A female ape, Bright Eyes, has been given the drug ALZ-112, and has shown considerable progress compared to the other apes. Will Rodman, a scientist in the company, talks to his boss, Steve Jacobs, and convinces him that the data he has for the experiment on the drug ALZ-112 is effective, and it enables them to proceed with human trials for the drug. The next day, during the time when Will explains that the new drug causes neurogenesis, the growth of new brain cells, and may also heal any number of degenerative brain disorders, such as Parkinson's or Alzheimer's disease to the board of directors of the firm in the conference room, Bright Eyes considers that the workers who are going to bring her to the conference room to show the directors of the company want to hurt her baby, so she goes 'ape' and looses control. In the chaos, the security guards shoot Bright Eyes. After Will turns back to the laboratory, his colleague shows him the baby. Will brings the baby ape back home and names him Caesar. Caesar soon shows incredible development, for instance, he is able to feed himself after only 2 days. Apparently, he has contracted the virus-based drug ALZ-112 from his mother. Since then, after three years, the half-grown Caesar is a beloved member of the family. He not only shows great intelligence, but also communicates complicated ideas with sign language. While Caesar has been showing mental growth, Will's father's, Charles who suffers from Alzheimer's disease, is getting worse and he has a brawl with his nurse. In order to cure his father's illness, Will takes a risk and steals ALZ-112 from his company. He gives a dose to Charles to see if the drug may work or not.

Surprisingly, ALZ-112 appears to be a miracle drug. The next morning, Will sees his father sitting at the piano, playing perfectly. Unfortunately, some time passed, Charles's illness suddenly gets even worse than before using ALZ-112, and he gets confused and wanders outside and get into his neighbor's car. He attempts to drive the car, but ends up damaging it. His neighbor gets furious and starts to punch Charles. Caesar sees this and wants to protect Charles, but later is taken to a primate 'sanctuary' by animal control. During the time when Caesar is living in the cage, he suddenly develops language skills and can speak. He feels himself not to be part of the human world, so he decides to set those apes and himself free from the cages.

The reason why I am interested in laboratory animals is because "[w]e have crafted the word 'Anthropocene' to name this lithic record of our domination over time and matter, to demarcate an era immutably altered through our bustle" (Cohen 25). It is human beings who dominate nonhuman beings, including the ecological environment and nonhuman animals. Human beings take various kinds of advantages from this ecosystem. For instance, "[m]ost carbon dioxide released into the atmosphere as a result of the burning of fossil fuels will eventually be absorbed by the ocean, with potentially adverse consequences for marine biota" (Caldeira and Wickett 365). Scientists discover that oceanic absorption of CO2 from fossil fuels may cause greater pH changes over the following several centuries than any inferred from the geological record of the past 300 million years. That is to say, 'Anthropogenic carbon' results in severe harm toward this ecosystem than whichever extreme events, "such as bolide impacts or catastrophic methane hydrate degassing" (Caldeira and Wickett 365). Human beings suppose all the things they can see in this nature as resources for use, abuse, and transformation—and thereby blind themselves to matter's vibrancy. Consequently, the oceans are acidifying and becoming desolate. Besides, ignoring the protection of this ecology and environment, human beings also do not care about the living of nonhuman animals, human beings make good use of those nonhuman animals. In Jeffrey Jerome Cohen's "Posthuman Environs," the readers can obviously see that human beings classify those

nonhuman animals and can see the hierarchy of nonhuman animals which is given by human beings. When people go for hunting, they always bring dogs with them. "The violence of the hunt: whip and words are deployed to discipline dogs and servants. 'Human' is false universal, a category that punishes and excludes" (Cohen 36). In this case, dogs can help human beings to find some other nonhuman animals for human beings to kill. Historically, dogs have been playing a significant role in human civilization and they are among the first domesticated animals. In accordance with archaeology, in Western Europe from the Paleolithic to the Iron Age, "[t]he presence of dogs living and evolving in the environment close to human settlements has clearly been attested through the relatively frequent discovery of canine coproliths in the heart of dwellings" (Horard-Herbin et al. 27). During that time, the functions of dogs include protecting people and belongings, hunting, war, work (travois, as pack or draft animals), entertainment (pets or dog fighting) or warmth (Digard 33-40). When it comes to the eighteenth-century Britain, fox hunting was a rather slow pastime. Squires and their tenants plodded either on horseback or on foot after a motley assortment of sniffing dogs, foxhounds (Ritvo 238). Apparently, through centuries, human beings having been using some specific kind of nonhuman animals, dogs, to track other nonhuman animals to kill. My questions are, how can human beings categorize what kind of nonhuman animals can be killed, and what cannot be killed? Do human beings have the right of classifying animals? In my opinion, the action of human beings using dogs for hunting is absolutely some kind of violent oppression of the nature because human beings force nonhuman beings to obey them, especially nonhuman animals, living in this 'Anthropocene' era created by human beings. Human beings have no rights to classify nonhuman animals since they are not human beings' possessions, which means that none of those nonhuman animals belongs to human beings. Human beings and nonhuman animals should be equal and be a part of the nature, in the same way the nature is also part of human beings and nonhuman animals. Based on the above, nowadays, human beings make some specific nonhuman animals as laboratory animals, using them as experimental objects.

This classification reveals the violence of the 'Anthropocene', and this violent domination can be explained by Michel Foucault's theory of biopolitics.

In Michel Foucault's *The History of Sexuality* (hereafter, referred to as *HS*), he explains the norms of how government, the power holder, intervenes in the individual life of human beings. This kind of power so called can be explained by his discussion of knowledge-power, "a means of social control and political subjection" (123). This political ordering of life goes with what Foucault calls biopower. Biopower literally means having a technology of power for controlling over other bodies, "an explosion of numerous and diverse techniques for achieving the subjugation of bodies and the control of populations" (143). In other words, the more accurate norm of biopower is that the "methods of power and knowledge assumed responsibility for the life processes and undertook to control and modify them" (142). In this case, the meaning of biopower is consistent with that articulated by Foucault, being "what brought life and its mechanisms into the realm of explicit calculations and made knowledge-power an agent of the transformation of human life" (143).

In Foucault's viewpoint, life is manipulated because the distribution of the powers is by and through various discursive systems. The systems are the products of knowledge. Foucault makes this argument in another study, *Archeology of Knowledge*. As he argues in that work, power and knowledge are inseparable and can intensify each other. Likewise, in the modern society, it is frequent to see the entanglement of power-knowledge. This nexus paradoxically overwhelms and controls the society as well as individuals because of the selected and privileged groups who take charge of most of the power and allocate the powers by the established discursive system, which are related to knowledge. By operating the knowledge and building up a cluster of discursive systems, the power possessed by the holders would be intensified, augmented, and perpetuated to metamorphose its physique. Additionally, in *Discipline and Punish* (hereafter referred to as *DP*), Foucault argues, "a corpus of knowledge, techniques, 'scientific' discourses is formed

and becomes entangled with the practice," which is an administrative way exercised by its power-holders (23).

As another thinker (philosopher, sociologist, and anthropologist), Bruno Latour claims, one can "look for obvious stated political motives and interests in…laboratories, [which are] sources of fresh politics as yet unrecognized as such" (157). While "Sharing Suffering: Instrumental Relations between Laboratory Animals and Their People," Donna J. Haraway shares her opinions towards Nancy Farmer's young adult novel *A Girl Named Disaster*. The story is generally about the relationship between an old African Vapostori man and the guinea pigs he cares for in a little scientific outpost, where the scientists uses these guinea pigs "for sleeping sickness research, the lab rodents [are] at the center of a knot tying together tsetse flies, trypanosomes, cattle, and people" (Haraway 69), in Zimbabwe around 1980. During working hours, "the guinea pigs [are] held in tight little baskets while wire cages filled with biting flies [are] placed over them, their skin shaved and painted with poisons that might sicken the offending insects with their protozoan parasites" (Haraway 69). The flies gorged themselves on the guinea pigs' blood. Nhamo, a young adolescent girl, new to the practices of science, watches everything.

> "It's cruel," agreed Baba Joseph, "but one day the things we learn will keep our cattle from dying." He stuck his own arm into a tsetse cage. Nhamo covered her mouth to keep from crying out. (Farmer 239)

Nonhuman animals were sacrificed in the laboratory to promote human beings' welfare. In this sense, life and the meaning of life seem to have been defined by someone who stands in a higher position. In other words, it is humans who dominate nonhuman animals' rights of survival.

The reason why human beings may dominate or even kill those nonhuman animals can possibly be traced back to the time when some human beings start to disrespect other human beings, the former group of human beings considers those to have a lower hierarchcal status from them in terms of nationality, race, gender, religion, and so on. Since ancient times, that

human beings mistreat other human beings, has occurred in every part of the world. The most significant part of the brutality is the existence of the 'camp'. As Giorgio Agamben points out in his book, *Homo Sacer: Sovereign Power and Bare Life*, the camp is like the *nomos* of the modern. In order to explain the concept of the existence of the camp, at the very beginning, Agamben invokes the term of ancient Roman law to describe a condition, or form of life, compactly described as 'bare'. Later on, he introduces the phrase 'homo sacer', which can be considered as the bare or depoliticized life that is distinguished from politicized forms of life, most clearly manifest in the citizen. In other words, in ancient Rome, the law differentiates human beings into the man with and without the rights of politics. Besides, Agamben also argues that the existence of bare life is an excess or some kind of by-product of the production of politicized life. Indeed, the bare life can be used to set off the politicized life and this kind of difference can obviously be distinguished by the role with or without 'power'. Agamben's theory of politics puts a highlight on the role of power: to Agamben, politics is a continuing process of clarification between inclusion and exclusion of political power; besides, politics for Agamben is between forms of life that the sovereign will protect and represent and those it will not. According to Agamben, this differentiating of included and excluded forms of life (with or without political powers) enables the sovereign to maintain its sovereignty: those forms of life which can possibly threaten the sovereign's jurisdiction over a particular land space are cast out, conceptually and at times physically, from 'the norm'. The exempt kind from the sovereign law are what Agamben calls 'zones of exemption', and they gain their most obvious materiality in the detention camp. Based on the above, Agamben suggested that "[t]he camps are thus born not out of ordinary law (even less, as one might have supposed, from a transformation and development of criminal law) but out of a state of exception and martial law" (Agamben 95). In other words, the power holder, which can possibly be considered as the government or anyone who has higher position, may allow the individuals or political prisoners, to be "taken into custody" (Agamben 95). In this case, the camp can be defined

as the space in which the most inhuman events have happened.

Laboratories are akin to detention camps while laboratory animals are as similar to political prisoners and other kinds of prisoners held and even killed in camps. In popular culture, one can find many instances of both the questioning and acceptance of human domination over other animals in the context of laboratory research and human interposing in the lives of nonhuman animals. At the very beginning of the film, the audiences can see lots of apes in the cages and the bodies of several dead apes on the carts, the failed experimental subjects, which reflects the theory of biopolitics from Michel Foucault. In this sense, the meaning of biopower is consistent with that articulated in Foucault's *The Birth of Bio-politics*, as *mechanisms of power* (45). These types of mechanisms are usually established in the collective. That is to say, these mechanisms of power are known as camps, schools, and hospital (Foucault, *DP* 136). In Foucault's view, *life* is manipulated because of the distribution of powers by those institutions that construct knowledge and fabricate disciplines. In other words, the distribution of powers involved with knowledge and disciplines can meritoriously manage a state and consolidates the position of power holders. These apes are dominated by human beings, the power holders at the Gen-Sys biotech company; this reveals the tragedy of many other experimental apes held in 'detention camps' where they are killed in the laboratories. Nonhuman animals are drawn into the laboratory to improve human health.

In *Rise of the Planet of the Apes*, the most impeccable fact is that ethnocentrism is the underlying attitude behind the whole scheme. That is to say, human beings are the executors who conduct the conspicuous scheme. In the modern society, based on the rapid advancement in medicine, human beings constantly take advantage of those non-humans, especially animals. Through the development of medical care in the pharmaceutical industry, human beings are enthusiastically searching for any possibility to extend their life and reach immortality. In order to achieve this rapacious goal, people start to do all kinds of experiments on animals, and these experimental animals are largely the matter of medical research "in which animals bear diseases of

interest to people" (Haraway 70), or suffer from the side effects of tests. In Wyatt's film, Will Rodman, the scientist at the biotech company, Gen-Sys, is testing the viral-based drug ALZ-112 on chimpanzees to try to find a cure for Alzheimer's disease. The testing of the drug ALZ-112 makes the experimental subjects, the apes, develop intelligence and act more like human beings. In reality, we are seeing similar uses of technology as human beings use genome editing techniques to make the nonhuman animal subjects change in some ways, expected and unexpected. One of those uses relates to CRISPR-Cas9. Human beings have started to use it in genome editing to create human-animal chimeras as subjects of research on nonhuman animals. Besides, human beings use apes for testing to prevent and cure HIV/AIDS by letting apes contract SIV and the side effect of the drug testing.

The CRISPR method has been developed and promises to improve our ability to edit the DNA of any species, including human beings, and it can be used in the prevention and treatment of human diseases. The CRISPR method, a natural system, is used by bacteria to protect themselves from infection by viruses. When the bacterium detects the presence of virus DNA, it produces two types of short RNA, one of which contains a sequence that matches that of the invading virus. These two RNAs form a complex with a protein called Cas9, a nuclease and a type of enzyme that can cut DNA. When the matching sequence, known as a guide RNA, finds its target within the viral genome, the Cas9 cuts the target DNA, disrupting the virus. The CRISPR system can be engineered to cut not just viral DNA but also numerous DNA sequences at a precisely chosen location by changing the guide RNA to match the target. Once the DNA is cut, researchers use the cell's own DNA repair machinery to knock in or out pieces of genetic material, or to make changes to the DNA by replacing an existing segment with a specific target sequence of DNA. All this can be done in cultured cells, including stem cells that can give rise to many different cell types. It can also be done in a fertilized egg, allowing the creation of transgenic animals with targeted mutations (Hsu et al. 1263-75).

Besides the CRISPR method, lentivirus "provide[s] great expectations for the generation of transgenic monkey models of human disease" (Chen et

al. 247). For example, "the dystrophin gene was targeted to generate Duchenne muscular dystrophy monkey models" (Chen et al. 248). Duchenne muscular dystrophy is caused by a mutation of the dystrophin gene, the largest gene in mammals containing 79 exons, at locus Xp21, which is located on the short arm of the X chromosome. The scientists knock out the dystrophin gene from monkeys' embryos, and the embryos transfers are performed, and 14 live monkeys are born. These monkeys are identified as "the dystrophin gene knockout founders" (Chen et al. 248), and the success of such an experiment has a considerable influence on the cure of human diseases. Besides, the researchers also "utilize this technology to generate disease models for conditions with multiple disrupted gene function, such as Parkinson's disease" (Chen et al. 248).

In addition, over the past thirty years, human beings have been trying to find various ways of curing HIV/AIDS by using nonhuman primates as experimental models. The reason why scientists keep using apes as animal disease models is because many experimental statistics reveal that HIV/AIDS is "[t]he cross-species transmission of lentiviruses from African primates to humans [and] has selected viral adaptations which have subsequently facilitated human-to-human transmission" (Heeney et al. 462). Under the experiments, the nonhuman primates' models are infected with simian immunodeficiency virus (SIV), which causes a disease similar to, but significantly different from AIDS. Scientists believe that these "animal models might hold essential clues for reconsidering and expanding the current paradigms of HIV pathogenesis" (Pandrea et al. 419). Although human beings might possibly acquire benefits from these scientific procedures, these apes are forced to suffer weight loss, major organ failure, breathing problems, diarrhea, vomiting, loss of appetite and neurological disorders. For instance, in order to learn more about the neurological complications in late-stage HIV infected human patients, the simian models are subjected to repeated blood sampling for up to ten months and when "regular blood samples were obtained to assess haematological parameters of incipient disease and veterinary advice sought when persisting abnormalities

were detected" (Ferguson et al. 2440), the experimental models will be killed 'under mercy'. "The study was terminated and animals killed humanely .... All efforts were made to minimize animal suffering..." (Ferguson et al. 2440). Actually, according to some of the scientists, reports of animal models of HIV have been notoriously inaccurate. Firstly, the immune response is intensely complicated and there are many disparities between the human immune response and those of other animals. Secondly, viruses are usually species specific. In this case, human beings do need to reconsider about using nonhuman primates as experimental models on HIV/AIDS scientific procedures.

In *Rise of the Planet of the Apes*, the invention of the drug ALZ-112 can be considered as a symbol of most of the treatments human beings are taking nowadays; they can possibly be the 'remedy' and 'poison' at the same time. The drug ALZ-112 does clearly reveal the idea of *pharmakon*, which is the term used in Jacques Derrida's Plato's *Phaedrus*. Based on Derrida's explanations of the *pharmakon*, it can also mean philter, drug, recipe, charm, medicine, substance, spell, artificial color, and paint. According to the above, *pharmakon* serves a flickering and disorienting role in the conceptual and philosophical oppositions. In other words, *pharmakon* can be broadly defined as remedy/ poison, good/ bad, true/ false, positive/ negative, interior/ exterior. ALZ-112 is the medicine which was invented for curing Alzheimer's disease, but later it turns out to be a poison for human beings not only to the body, but also to the ecological system. In the film, ALZ-112 does really make the illness of Will Rodman's father, Charles, find release, but soon it leads to the unexpected and rapid death of Charles. Besides, ALZ-112 also makes the nonhuman animal model, Caesar, obtain considerable progress, the ability of thinking like human beings, even not as primitive as the other apes since he develops the language skills. Because of the development of Caesar's brain, he realizes that human beings treat those nonhuman animals unkindly, so he steals the drug from Will's refrigerator and gives it to the apes living in the primate 'sanctuary' with him. Caesar soon makes those apes progress more than they had before. Besides, it turns out that those nonhuman animals

become too humanized and that can possibly turn out to be a disaster to the ecology system because human beings artificially evolve those nonhuman animals and no one can ensure what may happen in the future. For instance, it is possible for the apes to become the dominant species and take over this society.

In the reality, the CRISPR-Cas9 system has been successfully demonstrated thus bringing hope for its use in the study of human diseases. However, the possibility of "[o]ff-targeting is an issue of concern with the CRISPR-Cas9 system … which may cause unwanted modifications or side effects" (Chen et al. 249). That is to say, the CRISPR-Cas9 method can be a help in the research of the illnesses, yet while there may be so many benefits, the CRISPR-Cas9 system can possibly turn out to be poison, causing wrongly genetically mutated species. These unexpected genetically mutated species may turn out to be the destroyer of the food chain and lead to natural disaster. Besides the possibility of unpredicted off-targeting dangers, there are still lots of gene editing experiments that may lead to potential new crises. Since the CRISPR-Cas9 method is still a new gene editing system, there are still not too many controversial issues, but there are some other gene editing systems, take as an example lentiviral vectors, a method by which genes can be inserted, modified, or deleted in organisms using lentivirus; it has been used in many experiments on nonhuman primates, and these scientific researches, based on lentiviral vector, may possibly lead to unexpected consequences. For instance, the researchers inject a viral vector containing the human-specific MCPH1 gene, "an important gene for brain development and brain evolution" (Shi et al. 1), into monkey embryos. These embryos are then transfer into surrogate monkeys who give birth to the baby monkeys with the human MCPH1 gene integrated into their genomes. Monkeys with an inserted human gene "exhibited better short-term memory and shorter reaction time compared to the wild type controls in the delayed matching to sample task" (Shi et al. 1). Although this experiment "values the use of nonhuman primates in understanding human unique traits" (Shi et al. 1), there is a considerable ethical dilemma, which can possibly lead to an unstoppable

decline of human beings, since they make those nonhuman primates show considerable progress in being human like.

"[T]here are hardly any genes that can be found only in humans and not in animals" (Weschka 42), but "genes that play important roles in human brain development, MCPH1" (Shi et al. 2), have been inserted into monkeys' embryos. MCPH1 distinguishes human beings from monkeys because it is one of the strong candidates that contributes to human brain evolution and monkeys do not have this specific gene, that is the reason why monkeys are not as intelligent as human beings are. In other words, "the interaction of a number of genes with slightly different functions between animals and humans, especially those active during embryogenesis, are responsible for the morphological and physiological differences between the species, especially regarding the brain" (Weschka 42). In this case, this experiment can be considered as a process of humanizing monkeys because human beings genetically modify monkey embryos and this gene editing causes morphological and physiological variations in monkeys' brains. Some people believe that "biological[ly] humanity must depend on genome" (Weschka 42), and to what extent can we tell if these monkeys are nonhuman animals. Monkeys are our closest neighbor on the evolutionary tree and "[t]he most obvious differences are the size of the brain and the ability to speak" (Weschka 42). This experiment may possibly lead to the same consequences of portrayed in *Rise of the Planet of the Apes*—monkeys obtain intelligence and can speak. At the end, Caesar can not only speak but also leads the ape army to fight their way past a police blockade to escape into the redwood forest. The lentiviral Vector method means the progress of the Anthropocene, but "progress means: humanity emerges from its spellbound state no longer under the spell of progress as well, itself nature, by becoming aware of its own indigenousness to nature and by halting the mastery over nature through which nature continues its mastery" (Adorno 62). We, human beings, are trying to control things that are not meant to be controlled, and finally what was controlled will become the controller.

Besides the possibly of causing an unexpected crisis for human beings

and the ecosystem, the research and development of genome editing may lead to fatal side effects for human beings and nonhuman beings; for example, the therapies or drugs for curing HIV/AIDS can also turn out to be the great examples of *pharmakon*. Nowadays, there are lots of treatments not only for helping those with HIV/AIDS to improve the quality of their lives, but also for ensuring that they can have a similar life expectancy as the people without the virus. Even though these medical treatments do really help people with HIV/AIDS to extend their life span, the side effects of those remedies may also cause desperation or even death of the patients. Take antiretroviral medications as an example. Since HIV attacks the body's immune system, antiretroviral therapy works to decrease human beings' viral load to undetectable levels. In other words, it prevents HIV from multiplying, thus protecting the cells that the virus would otherwise target. The less HIV present in a human being's body, the easier it will be for the immune system to recover. There are many categories of antiretroviral drugs, including nucleoside reverse transcriptase inhibitors (NRTIs), non-nucleoside reverse transcriptase inhibitors (NNRTIs), protease inhibitors (PIs), entry inhibitors, and integrase inhibitors. Even though antiretroviral therapy can prolong people's lives and let them live healthy lives with reduced risks of complications and transmission, it does not mean that it can always ease people's suffering (Arts and Hazuda 1-4). On the contrary, the potential side effects of the remedy vary, depending on the type of medications people use. Those side effects can be categorized into short-term side effects, long-term side effects, and some side effects that indicate a more serious complication. Short-term side effects include, diarrhea, difficulty sleeping, dizziness (in some cases), fatigue, headache, muscle pain, nausea, vomiting; while long-term side effects include, depression, diabetes, heart disease, insomnia, kidney damage, liver damage, nerve damage, weak bones, a condition that doctors call osteoporosis, higher levels of fat in the blood (Chen et al. 6-8).

In the preceding paragraphs, I have tried to demonstrate that laboratory animals (referred to as apes) are akin to political prisoners and other kinds of prisoners held (and killed) in detention camps. Based on Michel Foucault's

theory of biopolitics, life is manipulated because the distribution of the powers is by and through various discursive systems. The systems are the products of knowledge. Human beings have so-called knowledge and so become the dominator of this eco-system (apes), since apes do not have the human MCPH1 gene, a human-specific gene for brain development and brain evolution. Through genome editing, apes with the MCPH1 gene have appeared. Basically because human beings need those apes to be the experimental subjects to seek for the remedy of human diseases. Besides genome editing, one other cruel action is using those apes to find out a cure for AIDS. Both genome editing and a cure for AIDS can turn out to be *pharmakon*, Jacques Derrida's term which means both remedy and poison. The development of the pharmaceutical industry's reliance on laboratory animals has a fatal impact on earth; thus, *Rise of the Planet of the Apes*, can be a representation of actual apes in reality. The film's drug ALZ-112 also reflects medical practices as it is a two-sided remedy that can cure or kill. As humans try to enhance their world by doing scientific and medical research, the results inadvertently and concurrently have destructive effects on the ecosystem. Undoubtedly human beings need to care about other species and love this eco-system or all the bad done will get back to them.

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