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Commercial Exploitation of DNA and the Tort of Conversion: A Physician May Not Destroy a Patient's Interest in Her Body-Matter

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COMMERCIAL EXPLOITATION OF DNA AND THE TORT OF CONVERSION: A PHYSICIAN MAY NOT DESTROY A PATIENT'S INTEREST IN HER BODY-MATTER.

I. INTRODUCTION

A physician who uses a patient's body-matter, develops a cell-line,[1] and commercially exploits the patient's likeness,[2] without that patient's knowledge or consent, has committed the common law tort of conversion[3] and breached her duty arising from the physician-patient fiduciary relationship.[4] Furthermore, she is liable to her patient for damages.[5]

These conclusions are based upon four premises that are substantiated in this Note. First, a person's body-matter is her personal property.[6] Second, a physician's use of a patient's body-matter is significantly inconsistent with the patient's property interest.[7] Third, a physician's

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1. Each human being has approximately 100,000 genes. However, through "[r]ecombinant DNA techniques," researchers are now able to "pluck out a single of the 100,000 genes . . . isolate it in a test tube, and study its structure, function, and regulation." Hood, *Biotechnology and Medicine of the Future*, 259 J. A.M.A. 1837 (1988). Using a single fragile organism would be impracticable, because once it was mutated or died, the organism would no longer be suitable for research. Therefore, the desired fragment of the human DNA is placed in bacteria or yeast where it is induced to act as a factory and model for the production of hundreds of units of identical living matter. Bagley, *Biotech*, AM. DRUGGIST, Dec. 1986, at 57, 63. These identical cells are called clones but when described in terms of their characteristics, they are called a "cell-line." Hood, *supra*, at 1837.

2. Cell-lines have commercial value because they are used in pharmaceutical products. For a list of these drugs, see *infra* note 16. For information regarding the profitability of the industry, see *infra* note 12.

3. For a definition of conversion, see *infra* notes 44-48 and accompanying text; *see also infra* notes 55-59 and accompanying text (explaining the advantages of a conversion suit over other tort or contract actions). *See generally* Prosser, *The Nature of Conversion*, 42 CORNELL L. Q. 168 (1957) [hereinafter *The Nature of Conversion*]; RESTATEMENT (SECOND) OF TORTS § 222A (1965); W. PROSSER & W. KEETON, PROSSER AND KEETON ON TORTS § 15 (5th ed. 1984) [hereinafter PROSSER & KEETON ON TORTS] (providing a general discussion of the conversion action including hypothetical examples of when the action is appropriate).

4. *See infra* notes 187-202 and accompanying text. *See generally* 61 AM. JUR. 2D *Physicians, Surgeons, and other Healers* §§ 166-73 (1981).

5. Damages is the award given to a plaintiff to fully compensate her for the wrong committed upon her by the defendant. For a more detailed discussion, see *infra* notes 203-15 and accompanying text.

6. If body-matter is not the patient's personal property, there can be no action for conversion because the action consists of tortious interference with another's personal property. *See infra* notes 44-49 and accompanying text.

7. The interference must be serious enough to warrant forcing the defendant to buy

exploitation of a cell-line developed from her patient's cells wrongfully benefits her.[8] Finally, damages are sufficient to compensate the plaintiff for the physician's actions.[9]

These issues arise because every time a person has an operation or blood test, the physician obtains body-matter with which she can experiment, clone unique segments of Deoxyribonucleic Acid (DNA),[10] and even patent[11] an extremely valuable cell-line.[12] Without the patient's knowledge or consent,

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the plaintiff's property, otherwise no conversion has taken place. *See infra* note 51 and accompanying text; *see also infra* note 46 and accompanying text (explaining the historical justification for this rule).

8. Another element of a conversion action is that the defendant did not act with legal justification. This Note will demonstrate that physicians, unlike other researchers, have a fiduciary relationship with their patients and can never purposefully act against these interests. *See infra* notes 173-202 and accompanying text.

9. While there are some reasons to bring an action which has no potential for monetarily compensating the victim (to deter future offensive conduct, for publicity, etc.), most plaintiffs would object to their legal expenses exceeding their award. As will be demonstrated, a conversion action provides the potential for a more substantial award than a contract action would provide and is more advantageous than other tort actions. *See infra* notes 55-59 and accompanying text. For a more complete discussion of damages, see *infra* notes 203-15.

10. For an explanation of the way a cell-line is produced, see *supra* note 1. *See also* Martin & Lagod, *Biotechnology And The Commercial Use Of Human Cells: Toward An Organic View Of Life And Technology*, 5 SANTA CLARA COMPUTER & HIGH TECH. L. J. 211, 214-17 (1989) (explaining the scientifically significant procedures which have led to the profitability of the biotechnology industry).

11. *See* Diamond v. Chakrabarty, 447 U.S. 303 (1980) ("[a] live, human-made micro-organism is patentable subject matter"). The Court considered the bacterium which was able to break down crude oil to be "human-made," not "naturally occurring," and "to have significant value." *Id.* at 305. The same could be said for any cell-line made from human tissue. While the organism is built from and produced by human genes, the researcher selects which part of the gene to reproduce and she stimulates the reproduction process by placing the DNA into a suitable medium which would not occur naturally. *See supra* note 1.

However, biotechnology and patent law are not an identical fit. Eisenberg, *Proprietary Rights and the Norms of Science in Biotechnology Research*, 97 YALE L.J. 177 (1987) (an examination of the interaction between intellectual property rights and the norms of biotechnological research); Karny, *Biotechnology Licencing*, 8 LICENSING L. & BUS. REP. 1 (1985) (advancing the proposition that living matter is unique, creating problems in regard to using intellectual property law). Interestingly, one scholar suggests that intellectual property law would work much better if his colleagues and the courts could understand that living organisms are merely a form of personal property. Kirn, *The Use of Common Law Bailments In Connection With The Licencing Of Living Organisms*, 235 PAT., COPYRIGHTS, TRADEMARKS, & LITERARY PROP. COURSE HANDBOOK SERIES 239 (1987).

12. A California appellate court has recently estimated that sales from products developed from one man's cells would exceed three billion dollars in a two-year period. Moore v. Regents of the Univ. of Cal., 202 Cal. App. 3d 1230, 249 Cal. Rptr. 494, *cert. granted*, 763 P.2d 479, 252 Cal. Rptr. 816 (1988) (a patient has a property interest in his

a physician may send her patient's body-matter to a laboratory, where a unique cell[13] may be isolated and then reproduced by placing the cell into a nutritious formula which stimulates the cell to clone itself—producing hundreds of offspring which may also be reproduced.[14] The physician may acquire the sole right to exploit this matter by patenting the technique used to create the cell-line and the cloned matter itself.[15] Although only a few products made from clones of human genes are currently available,[16] the industry is growing and already generates millions of dollars in sales revenue.[17] Therefore, with increasing frequency, the physician may transfer her patient's cell progeny to a biotechnology company for substantial consideration.[18]

A patient who discovers the sale of her body-matter by the physician may protest because she has either been deprived of a share of the profits,[19] or she objects on religious or ethical grounds to the use of her

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body-matter which is not necessarily forfeited when he leaves body-matter in a hospital following an operation).

More generally, sales of human biologicals have increased from approximately $100 million in 1984 to $200 million in 1985 to over $400 million in 1986. Experts have estimated that the market value for these products by the year 2000 will be between $15 billion and $100 billion. Bagley, *supra* note 1, at 57. Recent trends support the hypothesis that the biotechnology industry is growing rapidly. For example, in the third quarter of 1989, the net incomes of five leading biotechnology companies, Angen, Cetus, Genentech, Medtronic, and Stryker were up 34% from their 1988 third-quarter profits. Wall St. J., Nov. 13, 1989, at A1, col. 1.

13. Each human gene contains approximately 70% unique sequences (cDNA) and 30% frequently repeating sequences (genomic DNA). Donis-Keller & Botstein, *Recombinant DNA Methods: Applications to Human Genetics*, in 7 MOLECULAR GENETICS IN MED. 17, 23 (1988).

14. *See supra* notes 1, 10.

15. *See supra* note 11. For an example of a patent which was granted to a physician who developed a cell-line from a patient's blood and spleen cells, see *Moore*, 249 Cal. Rptr. at 517.

16. There are four commonly-used drug products on the market which were developed by cloning human genes: insulin, used by diabetics; blood coagulation protein Factor VII:C, used to control Hemophilia A; and human growth hormones and interferon, used in the treatment of cancer. Researchers are confident that recombinant DNA (rDNA) cell-lines will be widely used to diagnose prenatal disease and for replacement therapy (the process of inserting healthy genes into mutant cells to allow them to function normally) in the near future. Arnheim & Erlich, *Commercial Uses of Recombinant DNA Technology in Human Genetic Disease*, in 7 MOLECULAR GENETICS MED. 195, 196-97 (1988). For a more complete list of the medical products which have been developed through biotechnology, see Note, *Source Compensation for Tissues and Cells Used in Biotechnical Research: Why a Source Shouldn't Share in the Profits*, 64 NOTRE DAME L. REV. 628, Table 1 (1989) (reproduced from U.S. DEP'T OF COMM., 1988 U.S. INDUSTRIAL OUTLOOK 22-4, 22-5).

17. *See supra* note 12.

18. *See Moore*, 249 Cal. Rptr. at 500-01 (physician and sponsoring hospital received $440,000 and 75,000 shares of stock in a biotechnical company for a nominal fee in return for the right to use Moore's cell progeny).

19. *See id.* at 500 (Moore claimed that if he had known what his body-matter was

body-matter in this manner.[20] Since DNA cell-lines have tremendous potential value[21] and can be exploited without the patient's knowledge,[22] a question arises as to whether a patient is legally entitled to share in the profits which are made from her cells.[23] Absent legislative action, the courts must decide whether people have an interest in their DNA which survives the operation, the cloning process, and the transfer to the drug company. Additionally, if a patient is found to have an interest in body-matter, the courts must decide whether a doctor may commercially exploit that patient's cells without her permission.

These important issues were considered in *Moore v. Regents of University of California*.[24] John Moore, a forty-three year old sales manager from Seattle, Washington, was diagnosed as having hairy-cell leukemia.[25] His physician, Dr. David Golde, confirmed the diagnosis and removed Moore's spleen.[26] However, Dr. Golde also recognized that Moore's cells had unique properties and arranged to conduct experiments with Moore's blood samples and a section of his spleen.[27] After making significant discoveries and creating several cell-lines, Dr. Golde patented and sold his interest for $440,000 and 75,000 shares of stock which he acquired for a nominal fee.[28] The California appellate court explained:

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going to be used for he would have "sought participation in the economic benefit"); *see also* L.A. Times, May 11, 1988, at 3, col. 1 (a newspaper account of *Moore* which emphasizes the patient's desire for economic justice).

20. A case involving a person who objects to the production of her genetic likeness on religious grounds has not yet been brought before a court. However, in *Moore*, the court suggested that "[t]here are many patients whose religious beliefs would be deeply violated by use of their cells in recombinant DNA experiments . . . ." *Moore*, 249 Cal. Rptr. at 510. Likewise, biotechnology critics, such as Jeremy Rifkin, argue that "biotechnology intrudes [upon] God's domain." Howard, *Biotechnology, Patients' Rights, and the Moore Case*, 44 FOOD DRUG COSMETIC L. J. 331, 337 (1989).

21. *See supra* notes 12, 18.

22. *See infra* note 29 and accompanying text.

23. *See supra* note 19.

24. *Moore*, 249 Cal. Rptr. 494 (Ct. App.), *cert. granted*, 763 P.2d 479, 252 Cal. Rptr. 816 (1988).

25. *Id.* at 498. Hairy-cell leukemia is a form of cancer which typically affects the host's bone marrow, spleen, liver, and peripheral blood. DORLAND'S ILLUSTRATED MEDICAL DICTIONARY 914 (27th ed. 1988).

26. 249 Cal. Rptr. at 498.

27. *Id.*

28. During a three-year period, Dr. Golde entered into contracts with Genetics Institute, Sandoz Ltd., Sandoz United States, Inc., and Sandoz Pharmaceuticals Corporation for which Golde received 75,000 shares of Genetics' stock. Genetics paid the Regents and Golde an additional $330,000 while Sandoz paid $110,000 for the interest they received. *Id.* at 500.

> Without plaintiff's knowledge or consent, [defendants] . . . determined that plaintiff's cells were unique. Through the science of genetic engineering, these defendants developed a cell-line . . . along with methods of producing many products therefrom. In addition, these defendants entered into a series of commercial agreements for rights to the cell-line and its products with Sandoz Pharmaceuticals Corporation . . . and Genetics Institute, Inc. . . . The market potential of products from plaintiff's cell-line was predicted to be approximately three billion dollars by 1990. Hundreds of thousands of dollars have already been paid under these agreements to the developers.[29]

Moore's cells were particularly valuable because they produced interferon, a substance found to be useful in controlling cancer, Acquired Immune Deficiency Syndrome (AIDS), and other illnesses.[30] As a result of their special qualities, Moore's cell progeny—created from his body-matter by Dr. Golde, and developed, marketed, and mass produced by Sandoz Pharmaceuticals and Genetics Institute[31]—has the potential to be extremely valuable for those who are legally entitled to share in the profits.

Thus far, Dr. Golde, the Board of Regents, and the biotechnical companies have been successful in keeping Moore from obtaining any profits; however, the case is about to be heard by the California Supreme Court,[32] and it is likely to reach the United States Supreme Court because of the importance of the issues and the amount of money at stake.[33]

This Note is not a discussion of every potential issue associated with the commercial exploitation of a patient's cell-line. Rather it is an attempt to explain the common law tort of conversion as it applies to this issue. The Note concludes that a doctor who commercially exploits a patient's cell-line, absent her consent, has committed the tort of conversion and is strictly liable to the patient. Towards this end, the following section will

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29. *Id.* at 498.

30. *Id.* at 517. In December 1986, only two companies were licensed to market Interferon for the treatment of hairy-cell leukemia. At that time Interferon users took daily injections for four to six months and then three injections a week for the rest of the user's life, at a cost of 35 dollars per injection. Bagley, *supra* note 1, at 61-62.

Interferon "is being prescribed for other indications, including renal cancer, malignant melanoma, karposi's sarcoma, the form of cancer often associated with AIDS, and herpes, based on results of clinical trials. Another possible use is for the prevention of the common cold . . . . " *Id.* at 58.

31. *See supra* notes 27-29 and accompanying text.

32. 763 P.2d 479, 252 Cal. Rptr. 816 (1988), *granting cert.* 202 Cal. App. 3d 1230, 249 Cal. Rptr. 494 (1988)). Of course, there is always the possibility that the case will be settled out of court.

33. *E.g.*, L.A. Times, May 11, 1988, at 3, col. 1.

explain the common law tort of conversion.[34] The third section will demonstrate that a person has a tangible property interest[35] in her DNA[36] as well as a nontangible proprietary interest[37] in her likeness.[38] The fourth section will show that the development and commercial exploitation of a cell-line from a patient's body-matter without her permission intentionally[39] and substantially interferes with the patient's proprietary interest.[40] The fifth section will argue that the nature of the physician-patient relationship prevents a physician from claiming that the patient forfeited her property interest by leaving her body-matter in the hospital or office.[41] The sixth section will discuss the appropriate damages,[42] and the final section will briefly summarize the other sections of this Note.[43]

II. CONVERSION

Conversion—a noncontroversial,[44] strict-liability tort[45] which evolved from the common law action of trover[46]—is an intentional exercise of

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34. *See infra* notes 44-59 and accompanying text.

35. Tangible property is "[t]hat which may be felt or touched, and is necessarily corporeal . . . ." BLACK'S LAW DICTIONARY 1306 (5th ed. 1979).

36. *See infra* notes 60-124 and accompanying text.

37. "'Proprietary interest' . . . denote[s] any right of ownership of an interest in relation to the chattel which would entitle the actor to retain its possession permanently, indefinitely, or for a period of time." RESTATEMENT (SECOND) OF TORTS § 229 comment a (1965).

38. *See infra* notes 125-46 and accompanying text.

39. *See infra* notes 153-56 and accompanying text.

40. *See infra* notes 157-72 and accompanying text.

41. *See infra* notes 187-202 and accompanying text.

42. *See infra* notes 203-15 and accompanying text.

43. *See infra* notes 216-25 and accompanying text.

44. For some examples of some recent conversion cases, see *infra* note 48.

Even Louisiana, which does not recognize the common law, accepts the tort of conversion. *E.g.*, Chrysler Credit Corp. v. Perry Chrysler Plymouth, 783 F.2d 480, 483-84 (5th Cir. 1986) (stating that conversion has been recognized in Louisiana "as an offense or quasi offense under LSA-C.C. Art. 2315" and has characteristics from the common as well as the civil law).

45. In a negligence-based action the plaintiff must prove that the defendant breached a duty owed to the plaintiff; however, in a strict-liability suit, the defendant has a duty to prevent her actions from harming the plaintiff and these elements of the tort action are satisfied. *See* Posner, *Strict Liability: A Comment*, 2 J. LEGAL STUD. 205 (1973).

46. PROSSER & KEETON ON TORTS, *supra* note 3, at 89-90. Trover may be defined as:

> a common law action for money damages resulting from the defendant's conversion to his own use of a chattel owned or possessed by the plaintiff. The plaintiff waives his right to obtain the return of the chattel and insists that the defendant be subjected to a forced purchase of the chattel from him.

dominion or control over another's chattel[47] that so seriously interferes with the right of the other person's ownership that the actor may justly be required to pay the other for the value of the chattel.[48] This definition,

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J. DUKEMINIER & J. KRIER, PROPERTY 65 (2d ed. 1988).

Since forced sale of the property has been considered a severe punishment for an interference with a property interest, trover was traditionally used in cases where the defendant had so seriously interfered with the plaintiff's right to dominion and control over his chattel that a forced sale was justifiable. PROSSER & KEETON ON TORTS, *supra* note 3, at 90.

47. Chattel is "[a]n article of personal property, as opposed to real property." BLACK'S LAW DICTIONARY 215 (5th ed. 1979).

48. This definition is substantially the same as the ones offered by Professor Prosser and by the *Restatement (Second) of Torts*. Professor Prosser wrote, "[c]onversion is an intentional exercise of dominion or control over a chattel, which so seriously interferes with the right of another to control it that the actor may justly be required to pay the other the full value of the chattel." *The Nature Of Conversion*, *supra* note 3, at 173-74 (emphasis omitted). *See* RESTATEMENT (SECOND) OF TORTS § 222A(1) (1965) (using similar language).

Examples of some other definitions which have recently been used are: "Conversion is an act of willful interference with the dominion or control over a chattel, done without lawful justification, by which any person entitled to the chattel is deprived of its use and possession." Baram v. Farugia, 606 F.2d 42, 43 (3d Cir. 1979) (in a conversion action, once a defendant pays the plaintiff the value of the chattel, the property then belongs to the defendant and he is not liable for subsequent use) (applying Pennsylvania law). "Any distinct act of dominion wrongfully exerted over the property of another, and in denial of its rights, or inconsistent therewith, may be treated as a conversion." Shamblin's Ready Mix v. Eaton Corp., No. 86-1114 (4th Cir. May 26, 1987) (WESTLAW, Allfeds library, CTA file) (applying West Virginia law). "[C]onversion consists of '[a]ny distinct act of dominion wrongfully exerted over the property of another, and in denial of his rights or inconsistent therewith.'" Acorn Structures v. Swantz, 846 F.2d 923, 926 (4th Cir. 1988) (quoting Universal C.I.T. Credit Corp. v. Kaplan, 198 Va. 67, 76, 92 S.E.2d 359, 365 (1956)) (after stating that an action for conversion could arguably lie because the defendant used building plans in building a house after he agreed not to use them; however, the court did not decide the issue because conversion was pleaded as an alternate ground for the suit and the court upheld the main action) (applying Virginia law). "'[C]onversion . . . may be defined as any distinct act of dominion wrongfully asserted over another's personal property in denial of the owner's rights or inconsistent with them.'" Pan Eastern Exploration v. Hufo Oils, 855 F.2d 1106, 1125 (5th Cir. 1988) (lack of consent is an element of the tort of conversion and must be proved by the plaintiff accordingly) (quoting Staats v. Miller, 240 S.W.2d 342, 344 (Tex. Civ. App.), *rev'd on other grounds*, 150 Tex. 581, 243 S.W.2d 686 (1951)) (applying Texas law). "'[Conversion is] a distinct act of dominion wrongfully exerted over another's property in denial of or inconsistent with the owner's right therein.'" Chrysler Credit Corp. v. Perry Chrysler Plymouth, 783 F.2d 480, 483 (5th Cir. 1986) (quoting Madden v. Madden, 353 So. 2d 1079, 1081 (La. Ct. App. 1977)) (applying Louisiana law). "[C]onversion accrues when the defendant 'exercises dominion over personal property to the exclusion and in defiance of the rights of the owner or withholds it from his lawful possession under a claim of title inconsistent with the owner's title.'" Lee Tool & Mould, Ltd. v. Fort Wayne Pools, Inc., 791 F.2d 605, 608-09 (7th Cir. 1986) (the conversion statute of limitations begins once the plaintiff asks for the return of the property) (quoting Monarch Buick Co. v. Kennedy, 138 Ind. App. 1, 209 N.E.2d 922 (Ct. App. 1965)) (applying Indiana law). "[C]onversion is a tort involving 'appropriation of an

however, includes several legal terms, such as "chattel," "dominion," "control," and "value" that do not necessarily encompass a property interest in body-matter.[49] Most problematic, for the purposes of this Note, is whether human body-matter is chattel or personal property.[50] Additionally, it is not readily apparent that a doctor's use of her patient's body-matter constitutes an interference which is severe enough to warrant recovery.[51] Finally, because the appropriate measure of damages is the value of the property at the time of the conversion,[52] it is not clear that human body-matter *has value* at the time of conversion.[53] Thus, the application of the conversion action to human body-matter is novel[54] but, as this Note will demonstrate, appropriate nevertheless.

Despite the definitional difficulties, it may be advantageous for a patient to use a conversion action when trying to recover damages from a physician who has exploited her body-matter without permission. It is

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owner's personal property to a tort-feasor's use and . . . under an inconsistent claim of title.'" Centerre Bank v. New Holland Div. of Sperry Corp., 832 F.2d 1415, 1423 (7th Cir. 1987) (quoting Plymouth Fertilizer Co. v. Balmer, 488 N.E.2d 1129, 1140 (Ind. Ct. App. 1986)) (applying Indiana law). "'[A]ny act of dominion wrongfully exerted over another's personal property in denial of or inconsistent with his rights therein.'" *In re* James E. O'Connell Inc., 799 F.2d 1258, 1261 (9th Cir. 1986) (quoting Hartford Fin. Corp. v. Burns, 96 Cal. App. 3d 591, 598, 158 Cal. Rptr. 169, 172 (1979) (quoting Igauye v. Howard, 114 Cal. App. 2d 122, 126, 249 P.2d 558, 561 (1952))) (refusal to return a deposit constituted conversion). "Conversion requires 'a wrongful exercise of dominion over property in exclusion or defiance of a plaintiff's rights, where said plaintiff has . . . the immediate right to possession.'" Limbaugh v. Merrill Lynch, Pierce, Fenner & Smith, Inc., 732 F.2d 859, 863 (11th Cir. 1984), *aff'd*, 784 F.2d 1086 (11th Cir. 1986) (quoting Empire Gas of Gadsden v. Geary, 431 So. 2d 1258, 1260-61 (Ala. 1983)) (cash can be property subject to conversion) (applying Alabama law).

Additionally, most states have statutory provisions which expand the common law notion of conversion to ensure that banking instruments are considered chattel. *E.g.*, N.Y. U.C.C. LAW § 3-419 (McKinney 1964); TEX. BUS. & COM. CODE ANN. § 3.419 (Vernon 1968).

49. In a broader context, Prosser and Keeton have written that conversion "almost defies definition." PROSSER AND KEETON ON TORTS, *supra* note 3, at 88.

50. *See supra* notes 35 & 47 (defining personal property and chattel respectively).

51. *See* RESTATEMENT (SECOND) OF TORTS § 222A comment c-d (1965). For a more complete discussion of the requirement that the interference with the plaintiff's property might be severe, see *infra* notes 155-70 and accompanying text. *See also* Note, *A New Found Holiday: The Conversion of Intangible Property--Re-Examination of the Action of Trover and Tort of Conversion*, 1972 UTAH L. REV. 511, 523-24 (addressing the tort of conversion as applied in Utah but the principles are applicable nationally).

52. *See infra* note 203-04 and accompanying text.

53. If the courts use a fair market value standard for judging the property's value, the body-matter would be worth nothing in states which forbid the transfer of human body-matter for valuable consideration. *See infra* notes 84-86 and accompanying text.

54. *But see Moore*, 249 Cal. Rptr. 494 (Ct. App. 1988) (without addressing the issue of value the court held that a patient may sue for conversion of his body-matter unless the conversion took place after he abandoned his property).

an easier action to plead and prove than many other tort actions because the elements of duty, breach, and damage may be established by the circumstances of the case.[55] The plaintiff simply has to demonstrate that the action resulted from an intentional act. Therefore, a physician who intentionally uses a patient's body-matter without lawful justification may be found to have breached a duty, regardless of her purpose. Additionally, the tort is predicated on the doctor's interference "with [the] dominion or control over the chattel incident to some general or special ownership rather than on damage to the physical condition of the chattel."[56] This means that a physician who experiments with, and then clones, a patient's cell-line will have caused damage to the patient merely by using it—without the patient proving that there was an actual loss to her.

Alternative actions in contract present problems that are avoided by an action in conversion. The damages for breach of contract are usually the benefit of the bargain[57] or restitution for what was lost.[58] Neither of these would adequately compensate the plaintiff because the patient did not expect any financial benefit from her relationship with the physician. Moreover, the plaintiff may not have suffered any actual damages because she may not have profited from her cells if her physician had not sold the cells for value. Unlike contract damages, damages for conversion are based upon what the property was worth and not upon what the plaintiff would or should have made. Conversion, therefore, may be the more appropriate cause of action.[59]

III. A PATIENT'S PROPERTY INTEREST IN DNA

A. Theory

There is no question that body-matter is tangible—it can be measured, weighed, and recognized by all of the senses. Yet, these qualities do not always indicate that a person has a tangible personal property[60] interest

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55. Conversion is an intentional tort which leads to strict liability. *See supra* note 45; *see also The Nature of Conversion*, *supra* note 3, at 184 (providing a summary of the conversion action and an explanation of why the plaintiff does not need actual damages).

56. Baram v. Farugia, 606 F.2d 42, 43 (3d Cir. 1979).

57. The traditional damage award in a contract action is to put the injured party in the position which she would have occupied had the contract been fully performed. E.A. FARNSWORTH, CONTRACTS 839 (1982).

58. An alternative to expectancy based damages, used less frequently, restitution damages are awarded when the defendant has been unjustly enriched. The measure is usually for the reasonable value of the work, labor, or services performed by the plaintiff. L. FULLER & M. EISENBERG, BASIC CONTRACT LAW 296-97 (4th ed. 1981).

59. *See infra* notes 203-04 and accompanying text.

60. For a definition of tangible property, see *supra* note 35.

in her cells. For example, the earth's atmosphere is tangible but no one has the right to exercise exclusive control over it.[61] Therefore, the fact that something is tangible is not conclusive evidence that it is personal property.

Property is a term of art, indicating that a person has a right to control something and seek redress under the law if another person interferes with the exercise of that control. Generally, it is anything to which the following label may be attached: "To the world: Keep off unless you have my permission, which I may grant or withhold. Signed: Private citizen. Endorsed: The state."[62] As Professor Demsetz stated, "property refers to relationships between human beings such that so-called owners can exclude others from certain activities or permit others to engage in those activities and can in either case secure the assistance of the law in carrying out their decisions."[63] Since cells are physical substances which are subject to possession, the only question is whether one's interests in them are protected by law.

To a large extent, each state is free to determine what shall be considered subject to a property interest.[64] Legislatures, however, do not produce comprehensive guidelines for determining what matter should be considered property; rather the courts are left to fill the "gaps."[65] The judiciary acts as an independent gauge that measures the economic climate to determine whether it is necessary to grant a property interest.[66] The Fifth Circuit has explained that "[t]here is no cosmic synoptic definiens that can

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61. *But see* R. CUNNINGHAM, W. STOEBUCK & D. WHITMAN, THE LAW OF PROPERTY 411-12 (1984) (landowners have rights which are incident to owning land, including limited ability to control the surrounding airspace).

62. *Id.* at 2 (quoting Cohen, *Dialogue on Private Property*, 9 RUTGERS L. REV. 357, 374 (1954)).

63. Demsetz, *Toward a Theory of Property Rights*, 57 AM. ECON. REV. 347, 348 (1967) (paraphrased from Cohen, *Dialogue on Private Property*, 9 RUTGERS L. REV. 357, 373 (1954)).

64. Property is not constitutionally defined, but rather defined by state statute and the common law. Ruckelshaus v. Monsanto Co., 467 U.S. 986, 1001 (1984).

For a detailed discussion of the tension between property rights established by the common law and the states' ability to terminate these rights, see Ricks Exploration Co. v. Oklahoma Water Resources Bd., 695 P.2d 498, 503 (Okla. 1984) (a property owner has a common law right to use the water that runs under his land which cannot be taken away without due process of the law).

65. *See generally* B. CARDOZO, THE NATURE OF THE JUDICIAL PROCESS 113-15 (1921) (describing the legislative role of the judiciary).

66. Professor Demsetz has argued that property rights become essential when the value of the chattel outweighs the cost of exercising control over the matter and taking care of it. He calls this "internalizing the externalities." Demsetz, *supra* note 63, at 348. For a more complete analysis of Professor Demsetz's theories as they relate to the recognition of property rights in human body-matter, see Note, *Toward the Right of Commerciality: Recognizing Property Rights in the Commercial Value of Human Tissue*, 34 UCLA L. REV. 207, 227-28 (1986).

encompass [property's] range. . . . It devolves upon the court to fill in the definitional vacuum with the substance of the economics of our time."[67] In other words, matter which is subject to a property interest fluctuates as the economic reality changes.

As previously discussed in the context of *Moore*, the economics of our time speak loudly for allowing individuals to have a property interest in their body-matter.[68] Fifteen years ago, body-matter, separated from the body, was considered valueless;[69] today, however, DNA, which is used by researchers and developed into products,[70] is a resource like "minerals or oil"[71] and should therefore be recognized as property. Human cells may be even more valuable than minerals because they are used in production to create cell-lines and as a model for the design of new pharmaceuticals,[72] while fuel is merely used in production. Therefore, human body-matter, like other precious material, should be treated as property.

Some argue that despite the economic value of DNA, it would be against public policy to recognize it as property.[73] One student author suggested that by allowing patients to have a commercial interest in their cells, lives and valuable tissue would be destroyed because giving the patient the right to demand payment would significantly delay the negotiation process.[74] Additionally, the poor may harm themselves by donating tissue for money. Consequently, public funds will dwindle and the donation system will be destroyed.[75] However, granting a property interest in something is generally thought to increase and improve the

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67. First Victoria Nat'l Bank v. United States, 620 F.2d 1096, 1102 (5th Cir. 1980) ("rice history acreage" is devisable, descendible, and transferable inter vivos and therefore creates a property interest which is part of an heir's estate).

68. *See supra* note 12.

69. Although scientists have understood the structure of DNA since 1953, it was not until the last 15 years that biotechnology has become a commercial enterprise. Note, *Biotechnology Research*, 97 YALE L.J. 177, 178 (1987); Note, *supra* note 66, at 210.

70. *See supra* notes 10-18 and accompanying text.

71. Doyle, *DNA — It's Changing The Whole Economy*, THE CHRISTIAN SCIENCE MONITOR, Sept. 30, 1987, at 13. Jack Doyle, a member of the Environmental Protection Institute in Washington, D.C., who works on energy and natural research policy, wrote, "What is emerging is the making of a new, unprecedented institution of economic and political power: the multifaceted, multinational, 'life sciences' conglomerate, a huge company that will use genes just as earlier corporate powers used land, minerals, or oil." *Id.*

72. *See supra* notes 1-2.

73. *But see* Note, *supra* note 66, at 236-42 (suggesting that the benefits of treating body-matter as property outweigh any negative impact on the supply of organs, or cost of medical transactions).

74. Note, *supra* note 16, at 632-41. This author inaccurately refers to the patient as the "middleman." *Id.* at 635-37. In reality, the patient is the person from whom the matter originates.

75. *Id.* at 638.

quality of the product's supply.

Body-matter is being wasted. Currently, most people who undergo an operation allow their body-matter to be disposed of without a second thought because they are unaware of its potential value. For example, in *Moore*, the unique cells in Moore's body were cancer cells which needed to be removed for his health benefit. After Moore's operation, he left the hospital, unaware of the value of the cells and uninterested in their fate.[76] Fortunately, Moore's physician was interested in this matter, and the value of Moore's cells was discovered.[77] Thus, body-matter which might ordinarily have been discarded was saved. Society would benefit if people recognized the potential value of their tissue, increasing the likelihood that it would be used for research whenever possible.[78]

Public policy and broad theoretical arguments may be superfluous if the courts have already recognized or denied property rights in human tissue. Although courts rarely refer to body-matter as property,[79] they have recognized property-like rights which are sufficient to give a patient a property interest in her body-matter. The "legal concept of property refers not to possession of 'things,' but to certain legal rights among persons with respect to 'things.'"[80]

> An interest labelled "property" normally may possess certain characteristics: it can be transferred to others; it can be devised and inherited; it can descend to heirs at law; it can be levied upon to satisfy a judgment; it comes under the jurisdiction of a bankruptcy court in a bankruptcy proceeding; it will be protected against invasion by the courts; it cannot be taken away without due process of law.[81]

A person does not need absolute control[82] or the presence of all of the

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76. *Moore*, 249 Cal. Rptr. 494, 498-502 (Ct. App. 1988).

77. *Id.* at 500-01.

78. *See supra* note 66.

79. *But see* Venner v. State, 30 Md. App. 599, 354 A.2d 483 (Ct. Spec. App. 1976) (recognizing patient's property right in his feces), *aff'd*, 279 Md. 47, 367 A.2d 949, *cert. denied*, 431 U.S. 932 (1977); *Moore*, 249 Cal. Rptr. 494 (Ct. App. 1988) (holding that a patient's body-matter is property for the purposes of a conversion action).

80. Libra Bank Ltd. v. Banco Nat'l De Costa Rica, 570 F. Supp. 870, 878 (S.D.N.Y. 1983); *see also* Bianchi v. United States, 219 F.2d 182 (8th Cir.), *cert. denied*, 349 U.S. 915 (1955).

81. First Victoria Nat'l Bank v. United States, 620 F.2d 1096, 1103-04 (5th Cir. 1980) ("rice history acreage" is property within the meaning of I.R.C. §§ 2031, 2033).

82. In *Moore*, after explaining that "property" is merely a group of legally cognizable rights--the most important of which is dominion and control--the court concluded that search and seizure cases, cornea transplant cases, and cases which address a person's right

mentioned characteristics to have a property interest in body-matter.[83] As will be demonstrated, the legal rights associated with the possession of human body-matter are significant enough to trigger a property interest.

B. Arguments Against Treating Body-Matter as Property

In many states, including California, there are statutory provisions that suggest that body-matter cannot be treated as property. For instance, many states restrict the transfer of body-matter for "valuable consideration."[84] Although most states restrict only the sale of organs,[85] some states prohibit the sale of human tissue as well.[86] Since these statutes significantly restrict the ability of a person to control her interest, it can be argued that the legislature did not wish a person to have a property interest in body-matter.

Second, forty-seven states have declared that when the medical service industry uses or stores blood and other body-matter for medical purposes, this is not a transfer of goods,[87] but the performance of a service.[88] Some

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to identity support the conclusion that human body-matter is property. 249 Cal. Rptr. at 504-10.

The majority recognized that limitations on the right to dominion over one's body are neccesary to protect the public health, but asserted, "[e]ven though the rights and interests one has over one's own body may be subject to important limitations because of public health concerns, the absence of unlimited or unrestricted dominion and control does not negate the existence of a property right for the purpose of a conversion action." *Id.* at 506.

83. *See First Victoria Nat'l Bank*, 620 F.2d at 1104 ("[a]n interest may qualify as 'property' for some purposes even though it lacks some of these attributes").

84. *See* CAL. PENAL CODE § 367f(a) (West 1988); CONN. GEN. STAT. ANN. § 19a-280a (West Supp. 1989); FLA. STAT. ANN. § 873.01 (West Supp. 1990); ILL. ANN. STAT. ch. 38, para. 12-20 (Smith-Hurd Supp. 1989); MD. HEALTH-GEN. CODE ANN. § 5-408(a) (1990); NEV. REV. STAT. § 201.460(1) (Supp. 1989); N.M. STAT. ANN. § 24-6-11 (1978); N.Y. PUB. HEALTH LAW § 4307 (McKinney 1985); TENN. CODE ANN. § 68-30-401 (1987); W. VA. CODE § 16-19-7a (Supp. 1989).

85. *See* CAL. PENAL CODE § 367f(a) (West 1988); NEV. REV. STAT. § 201.460(1) (1987); N.Y. PUB. HEALTH LAW § 4307 (McKinney 1985); TENN. CODE ANN. § 68-30-401 (1987); W. VA. CODE § 16-19-7a (Supp. 1989).

86. *See* FLA. STAT. ANN. § 873.01 (West Supp. 1990); ILL. ANN. STAT. ch. 38, para. 12-20 (Smith-Hurd Supp. 1989); N.M. STAT. ANN. § 24-6-11 (1978).

87. Although the term "goods" can be used to mean some specific type of personal property, it is sometimes used to mean "every species of personal property." BLACK'S LAW DICTIONARY 624 (5th ed. 1979).

88. The following provides an example of the statutory language used by the states:

> The procuring, furnishing, donating, processing, distributing or using human whole blood, plasma, blood products, blood derivatives and products, corneas, bones, or organs or other human tissue for the purpose of injecting, transfusing or transplanting any of them in the human body is declared for purposes of liability in tort or contract to be the rendition of a service by every person, firm

statutes plainly state that "human tissues, whole blood, plasma, blood products, or blood derivatives shall not be considered commodities subject to sale or barter."[89] The effect is to allow the medical service industry to escape liability for breach of implied warranty of fitness in the contract when it supplies blood which is unfit for human use.[90] (In these states, when a person transfers body-matter for medical purposes, she is only

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or corporation participating therein, whether or not any remuneration is paid therefor . . . .

ILL. ANN. STAT. ch. 111-1/2, para. 5102 (Smith-Hurd 1988).

Other similar statutes include: ALA. CODE § 7-2-314(4) (1984); ALASKA STAT. § 45.02.316(e) (1986); ARIZ. REV. STAT. ANN. § 36-1151 (1986); ARK. STAT. ANN. § 4-2-316(3)(d)(i) (1987); CAL. HEALTH & SAFETY CODE § 1606 (West 1979); COLO. REV. STAT. § 13-22-104(2) (1987); CONN. GEN. STAT. ANN. § 19a-280 (West 1986); DEL. CODE ANN. tit. 6, § 2-316(5) (1975); FLA. STAT. ANN. § 672.316(5) (West Supp. 1989); GA. CODE ANN. § 51-1-28(a) (1982); IDAHO CODE § 39-3702 (1985 & Supp. 1989); IND. CODE ANN. § 16-8-7-2(a) (Burns 1983 & Supp. 1989); IOWA CODE ANN. § 142A.8 (West 1989); KAN. STAT. ANN. § 65-3701 (1985); KY. REV. STAT. ANN. § 139.125 (Michie/Bobbs-Merrill 1982); LA. REV. STAT. ANN. § 9:2797 (West Supp. 1988); ME. REV. STAT. ANN. tit. 11, § 2-108 (Supp. 1989); MD. HEALTH-GEN. CODE ANN. § 18-402 (1990); MASS. GEN. LAWS ANN. ch. 106, § 2-316(5) (West 1990); MICH. COMP. LAWS § 333.9121(2) (Supp. 1987); MINN. STAT. ANN. § 525.928 (West 1975); MISS. CODE ANN. § 41-41-1 (1972 & Supp. 1989); MO. ANN. STAT. § 431.069 (Vernon Supp. 1990); MONT. CODE ANN. §§ 50-33-102-50, -33-104 (1989); NEB. REV. STAT. § 71-4001 (1986); NEV. REV. STAT. ANN. § 460.010 (Michie 1987); N.H. REV. STAT. ANN. § 507:8-b (1983); N.M. STAT. ANN. § 24-10-5 (1986 & Supp. 1989); N.Y. PUB. HEALTH LAW § 580(4) (McKinney Supp. 1990); N.C. GEN. STAT. § 131-410 (1989); N.D. CENT. CODE § 41-02-33(3)(d) (1983); OHIO REV. CODE ANN. § 2108.11 (Anderson 1976); OKLA. STAT. ANN. tit. 63, § 2151 (West 1984); OR. REV. STAT. § 97.300 (1984); 42 PA. CONS. STAT. ANN. § 8333 (Purdon 1982); R.I. GEN. LAWS § 23-17-30 (Supp. 1988); S.C. CODE ANN. § 44-43-10 (Law. Co-op. 1985); S.D. CODIFIED LAWS ANN. § 57A-2-315.1 (1988); TENN. CODE ANN. § 7-2-316(5) (1979); TEX. CIV. PRAC. & REM. CODE ANN. § 77.003 (Vernon 1986 & Supp. 1990); UTAH CODE ANN. § 26-31-1 (1989); VA. CODE ANN. § 32.1-297 (1985); WASH. REV. CODE ANN. § 70.54.120 (1975 & Supp. 1989); W. VA. CODE § 16-23-1 (1985); WIS. STAT. ANN. § 146.31(2) (West 1989); WYO. STAT. § 35-5-110 (1988).

89. *See, e.g.,* S.C. CODE ANN. § 44-43-10 (Law. Co-op. 1985). However, most statutes are more narrowly tailored and apply only to body-matter which is used "for the purpose of injecting, transfusing, or transplanting . . . in the human body." *See, e.g.,* ILL. ANN. STAT. ch. 111-1/2, para. 5102 (Smith-Hurd 1988). Finally, some statutes only apply to "whole blood . . . or any substance derived from blood . . . for injection [or] transfusion . . . ." MD. HEALTH-GEN. CODE ANN. § 18-402 (Supp. 1990).

90. When a product is sold the seller gives the buyer an implied warranty of fitness. If the product is not fit for the purpose for which it was sold, the seller is subject to strict liability for any damage resulting from the normal use of the product. Friend v. Childs Dining Hall Co., 231 Mass. 65, 120 N.E. 407 (1918). For an example of a statutory codification of this principle, see ALA. CODE § 7-2-314(1) (1984).

This is relevant to those who deal with blood, because blood used for transfusions may carry diseases. For a blood supplier who unknowingly sold hepatitis and AIDS-infected blood before performing tests for those diseases, the difference between their business being called a transfer of products and a transfer of services means complete liability for the deaths of blood recipients or complete exoneration absent negligence.

liable for negligent acts.) Arguably, matter which is not treated as goods or commodities for liability purposes should not be considered property for the purpose of a conversion action.

From "bloodshield" statutes it can be inferred that legislatures want to encourage the supply of body-matter[91] regardless of whether or not a person could recover for the damage of the body-matter. State legislatures have protected entities which aid in the supply of blood and other body-matter for patient use in order to encourage "a readily available supply of blood and blood products," organs, and other body-matter.[92] Arguably, the legislatures also intended to exempt physicians from any type of strict-liability in order to encourage the use of human tissue in research and product development. If patients are granted a property interest in their body-matter, they could prevent the physician from using the body-matter which is contrary to the legislative purpose of the "bloodshield" statutes.[93]

Additionally, while the transfer of property is usually taxed, some states specifically exempt blood and other body-matter from sales and use tax laws.[94] These exemptions provide more evidence that the legislatures

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91. For example, this policy has been expressed in Alabama, Arkansas, California, Florida, and North Carolina as justification for their aggressive Anatomical Gift Acts. ALA. CODE § 22-19-140 (Supp. 1988); ARK. STAT. ANN. § 20-9-801 (1987); CAL. HEALTH AND SAFETY CODE § 24171 (West 1984); FLA. STAT. ANN. § 732.910 (West 1976); N.C. GEN. STAT. § 130A-413 (1986).

92. Samson v. Greenville Hosp. Sys., 295 S.C. 359, 364, 368 S.E.2d 665, 668 (1988); *see* Heir of Fruge v. Blood Serv., 506 F.2d 841 (5th Cir. 1975) (strict liability and implied warranty does not apply to hospitals and blood banks, in order to "protect supply of blood and blood products"); McDaniel v. Baptist Mem. Hosp., 469 F.2d 230 (6th Cir. 1972) (hospital not strictly liable for wrongful death due to tainted blood transfusion where statute excluded implied warranties from contract for sale of blood); Kozup v. Georgetown Univ., 663 F. Supp. 1048 (D.D.C. 1987) (purpose of shielding blood suppliers from strict liability and implied warranty is to assure readily available blood products), *aff'd in part*, 851 F.2d 437 (D.C. Cir. 1988); Hyland Therapeutics v. Superior Court, 175 Cal. App. 3d 509, 220 Cal. Rptr. 590 (1985) (strict liability applies to the sale of blood but not to its manufacture or distribution); Zichichi v. Middlesex Mem. Hosp., 204 Conn. 399, 404, 528 A.2d 805, 808 (1987) (bloodshield statute exempting contracts for sale of "human blood, blood plasma, or other human tissue or organs" from implied warranties); Shortess v. Touro Infirmary, 520 So. 2d 389, 391 n.5 (La. 1988) (exempting hospitals and blood banks from implied warranties and strict liability for transmission of undetectable diseases); Roberts v. Suburban Hosp. Ass'n, 73 Md. App. 1, 532 A.2d 1081 (Ct. Spec. App. 1987) (producers, distributors, and suppliers of blood not liable under theories of strict liability and implied warranty of merchantability and fitness).

93. This argument was made by defendants in *Moore* and rejected by the court. The court reasoned that if physicians were permitted to profit from the patient's cells, the patient should be able to share in the profits as well. *Moore*, 249 Cal. Rptr. 494 (Ct. App. 1988).

94. *E.g.*, CAL. REV. & TAX. CODE § 33 (West 1987); IND. CODE ANN. § 6-2.5-5-19(c) (Burns 1989); TENN. CODE ANN. § 67-6-304 (1989). *But see* United States v. Garber, 607 F.2d 92 (5th Cir. 1979) (money earned from the sale of blood constitutes taxable income);

view body-matter as unique and do not intend to treat it as property.

Read together, these statutes restrict the transferability of body-matter, limit the liability which may be imposed upon the medical service industry, and treat body-matter as non-property for taxation purposes. Arguably, they strip the property-like rights from body-matter, manifesting a scheme not to treat DNA as property.

C. Arguments for Recognizing Body-Matter as Tangible Personal Property

As previously stated, a person does not need absolute control over body-matter for it to be considered property for the purpose of a conversion action.[95] Clearly, some body-matter is not transferable for consideration.[96] The statutes restricting transfer, however, represent a desire to encourage the availability of blood and organs and should be construed narrowly.[97] Furthermore, the statutes do not apply to the transfer of body-matter used to produce pharmaceutical products. Some statutes expressly allow the transfer of regenerative tissue for valuable consideration.[98] Illinois specifically states that the "[p]urchase or sale of drugs, reagents or substances made from human bodies or body parts, for use in medical or scientific research, treatment or diagnosis" is allowed.[99] The courts should not interpret otherwise silent statutes as prohibiting the transfer of DNA for the development of pharmaceutical products which have only recently begun producing significant sales revenue,[100] a development probably not contemplated by the legislature at the passage of the statute. Even if statutes prohibit the transfer of a patient's body-matter to the physician for consideration, they do not necessarily prevent the patient from bringing a conversion action against the physician. The value of the body-matter remains the same irrespective of whether it can be sold. If a physician has commercially exploited the patient's cell-line, it means that matter which is alive and identical to the patient's matter was already sold for valuable consideration. As the court stated in *Moore*, "the cell-line has already been commercialized by [the]

Parkridge Hosp. v. Woods, 561 S.W.2d 754 (Tenn. 1978) (transfer of human blood for consideration is a sale of tangible personal property and therefore taxable).

95. *See supra* notes 82-83 and accompanying text.

96. *See supra* notes 84-86 and accompanying text.

97. When a statute potentially interferes with a property right it must be construed narrowly. In other words, if there are two ways to read a statute, the court must read it in a way least offensive to a property interest. *See* Ricks Exploration v. Oklahoma Water Resources Bd., 695 P.2d 498, 504-05 (Okla. 1984) (a mineral lessee common law property interest cannot be destroyed by a broad reading of a state conservation statute).

98. *E.g.*, CAL. PENAL CODE § 367f(c)(1) (West 1990).

99. ILL. ANN. STAT. ch. 38, para. 12-20(b)(7) (Smith-Hurd Supp. 1989).

100. *See supra* note 13.

defendants. We are presented [with] a *fait accompli*, leaving only the question of who shares in the proceeds."[101] But for the patient's unique DNA, the physician would not have been able to produce a cell-line and develop pharmaceuticals—much like a farmer cannot produce corn without seeds.[102]

Additionally, no statute provides that the transfer of body-matter can never be considered a sale. To the contrary, "bloodshield" statutes and tax exemption clauses provide affirmative evidence that body-matter is property. For example, without the tax exemption provision, body-matter would be taxed as income derived from the sale of personal property.[103] Similarly, without the "bloodshield" statutes, those who store and transfer blood would be held to have an implied term in their contracts for the fitness of their product, as is the case with the sale of other products.[104]

Finally, when balanced against the property-like rights associated with body-matter, these restrictions seem insignificant.[105] Search and seizure cases provide the clearest evidence that body-matter is property.[106] Although fourth amendment guarantees barring unreasonable searches and seizures result from the recognition of privacy interests, courts often speak in terms of property interests in order to ascertain whether the person had the object within her dominion and control and whether that person was legally entitled to the object which was seized.[107] In this context, the Maryland Court of

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101. *Moore*, 249 Cal. Rptr. 494, 504 (Ct. App. 1988) (emphasis in original).

102. Some might argue that the physician is selling his discoveries, not body-matter. This argument is not valid because the procedures and the technological know-how are worth nothing without the patient's cell-line.

103. Statutes which directly prohibit taxing blood and other body products are tax exemptions. *See supra* note 94. By definition, an exemption is that which is taxable, but for some public policy reason the legislature has chosen to waive the tax. BLACK'S LAW DICTIONARY 513 (5th ed. 1979). *But see* Parkridge Hosp. v. Woods, 561 S.W.2d 754 (Tenn. 1978) (blood is "tangible personal property" and the Tennessee bloodshield statute does not prevent taxing the sale of blood). The court stated:

> "Tangible personal property" is defined in [Tenn. Code Ann.] § 67-6-102(17) (1983) to mean and include "personal property, which may be seen, weighed, measured, felt, or touched, or is in any other manner perceptible to the senses." . . . [sic] [I]t is obvious that human blood falls within the ambit of this statute, being an item of tangible personal property. Declaring that human blood is taxable under this taxing statute would not be open to debate, but for the passage by the Tennessee General Assembly of [a bloodshield statute].

Id. at 755.

104. *See supra* note 90 and accompanying text.

105. *See infra* notes 106-13 and accompanying text.

106. It is not essential that one have a constitutional interest in matter for it to be treated as property. Ruckelshaus v. Monsanto Co., 467 U.S. 986, 1001 (1984). Nonetheless, it is a sign that the possessor has a property interest. *See supra* note 81 and accompanying text.

107. *See generally* G. GUNTHER, CONSTITUTIONAL LAW 475-87 (11th ed. 1985) (discussing the "constitutional safeguards of economic rights").

Appeals found that human excreta was property.[108] Similarly, the United States Court of Appeals for the Seventh Circuit referred to human hair as "property."[109] These decisions are significant because they use the word property to describe body-matter and, more importantly, because they conclude that hair and body waste are within the exclusive dominion and control—characteristics of property—of the possessor.[110]

Like the prohibition against takings without due process, the legal concept "descend[ed] to heirs at law" is normally associated with a "property interest" that demonstrates exclusive dominion and control.[111] Most states have enacted a Uniform Anatomical Gift Act (UAGA) which permits a person to devise all or part of her body or to forbid the use of her body-matter after death.[112] For example, if a physician knows or has reason to know that a person does not want her corneas removed at death, to do so is impermissible.[113] (In the case of taking matter from a living person, the physician does not have to guess what the person would have wanted. Instead, she may ask the patient for permission to use her body-matter for research and commercial exploitation which the patient may grant or deny.)

Justice demands that the courts recognize body-matter as property.[114] The following hypothetical demonstrates the absurdity of not recognizing this interest. If a person's hand is accidentally severed, a passer-by could take the severed hand and refuse to give it back to the victim for emergency surgery. The hand, after all, would not be considered the victim's property and could be used by anyone who possesses it.[115] The passer-by, however,

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108. Venner v. State, 30 Md. App. 599, 354 A.2d 483 (Ct. Spec. App. 1976) (balloons containing hashish oil, which were found in a patient's feces, could be seized after the patient abandoned his feces), *aff'd*, 279 Md. 47, 367 A.2d 949, *cert. denied*, 431 U.S. 932 (1977).

109. United States v. Cox, 428 F.2d 683, 688 (7th Cir.) (a prison inmate's hair clippings may be seized from the prison barber after the inmate abandons his property), *cert. denied*, 400 U.S. 881 (1970).

110. *See supra* note 81 and accompanying text.

111. *Id.*

112. *See* ALA. CODE § 22-19-42 (1975); CAL. HEALTH & SAFETY CODE §§ 7150-7158 (West 1970 & Supp. 1987); DEL. CODE ANN. tit. 16, §§ 2710-2726 (Supp. 1988); LA. REV. STAT. ANN. § 17:2351 (West 1989); MD. EST. & TRUSTS CODE ANN. § 4-504 (1987); MASS. GEN. L. ch. 113, §§ 8-10 (1983 & Supp. 1989); MINN. STAT. § 525.92 (1988); MO. REV. STAT. §§ 194.210-.240 (1989); N.J. STAT. ANN. § 26:6-58 (West Supp. 1988); N.M. STAT. ANN. § 24-6-2 (1986); N.Y. PUB. HEALTH LAW § 4351 (McKinney Supp. 1990); OKLA. STAT. ANN. tit. 63, §§ 2201-2214 (West 1984 & Supp. 1990); VA. CODE ANN. §§ 32.1-283 & 32.1-292; W. VA. CODE § 16-19-4a (1966 & Supp. 1989).

113. Tillman v. Detroit Receiving Hosp., 138 Mich. App. 683, 684, 360 N.W.2d 275, 277 (1984) (corneas may be removed only if it was not against the wishes of the person when living and does not disfigure the corpse).

114. For a more complete discussion of why justice requires the recognition of a property interest in body-matter, see Note, *supra* note 66, at 229-36.

115. Perhaps this hypothetical is the proverbial Martian from Mars. Nonetheless, the

would be liable for conversion if she deprives the victim of rings which were attached to the hand.[116] Most people viscerally react not only to the graphics of this image, but to the notion that a person could be deprived of something which is so elementally hers. A physician's use of a patient's body-matter for commercial exploitation does not deprive a person of the use of a hand, but it does deprive the patient of the right to commercially exploit that matter to her financial benefit, which is also a serious violation of a property interest.[117]

Similarly, a patient should be able to prevent her body-matter from being taken for experimentation or commercial exploitation.[118] Patients may have moral, religious,[119] ethical, or environmental[120] objections to having their body-matter dissected or cloned. By failing to recognize a property interest in body-matter, the patient is forced to either have an operation and risk losing that matter or not have an operation to prevent the physician from removing the body-matter against the patient's will.[121]

Furthermore, even though the patient is denied a property interest in her cells and prevented from obtaining profit, this does not change the fact that DNA may be commercially exploited by physicians. Denying the patient a property interest would allow the physician to take, without cost, her patients' cells which she could then develop, patent a cell-line,[122] and

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situation is similar to the facts in *Moore*. *See supra* notes 24-32 and accompanying text. Neither severed limbs, blood, nor nonvital organs are necessary for survival, but taking them may cause damage to the owner. In the case of the converted hand the damage is obvious. In the case of cells, the patient will be denied the opportunity to commercially exploit them for herself. Moore and others in his situation stand to lose their share in a multi-billion dollar cell-line. *See supra* note 12. (Remember the saying, "I'd give my right arm for a million dollars.").

116. *See* Armory v. Delamirie, 1 Strange 505 (Kings Bench, 1722) (plaintiff successfully sued in trover because defendant appraised a jewel and then refused to return it), *cited in* J. DUKEMINIER & J. KRIER, PROPERTY 64 (2d ed. 1988).

117. *See infra* notes 166-72 and accompanying text.

118. *See generally* Note, *Informed Consent in Human Experimentation: Bridging the Gap Between Ethical Thought and Current Practice*, 34 UCLA L. REV. 67 (1986) (a survey of the law relating to human experimentation and proposals for increasing subject's rights).

119. *See supra* note 20.

120. Some people fear that the constant creation of live organisms can introduce new forms of species that are dangerous to the ecosystem. *See* J. DOYLE, ALTERED HARVEST (1986) (the focus of this work is on genetic experimentation with plant and nonhuman animal life; however, the concerns extend to all areas of genetic research).

121. The patient is often unconscious at the time the matter is removed and could not immediately attempt to recover the matter even if she was aware of its value and wished to engage in a physical struggle.

122. *See supra* note 11 (man-made, living organisms are patentable matter); *see also* Scripps Clinic & Research Found. v. Genentech, 666 F. Supp. 1379 (N.D. Cal. 1987) (licensee and owner of blood-clotting factor, which was developed from human genes,

sell to a biotechnical company for whatever remuneration she and the company agree upon. In turn, a biotechnical company may charge the drug consumers any price, depending upon the market.[123] While it is true that the recognition of a property interest in cells would allow people to demand exorbitant compensation or deny use altogether, physicians and pharmaceutical companies have the same flexibility in their choice to exploit or not to exploit their patents.[124] Giving the patient a proprietary interest in her cells merely allows her to participate in the already established commercialization process.

D. Recognizing a Non-tangible Proprietary Interest in Genes

In addition to a person having a tangible property interest in her body-matter, a person has a right to control the exploitation of her likeness.[125] This action, which represents the merging of a privacy and property interest with the right to be compensated for another's unjust enrichment,[126] is called the right to identity or right to publicity. In this

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successfully brought a patent infringement suit against a competitor).

123. Pharmaceutical products are not price regulated.

124. The defendant in *Moore* argued that giving patients a property interest in their cells is contrary to public policy. The California appellate court rejected the defendant's argument:

> We concede that, if informed, a patient might refuse to participate in a research program. We would give the patient that right. As to defendant's concern that a patient might seek the greatest economic gain for his participation, this argument is unpersuasive because it fails to explain why defendants, who patented plaintiff's cell-line and are benefiting financially from it, are any more to be trusted with these momentous decisions than the person whose cells are being used.

Moore, 249 Cal. Rptr. 494, 508-09 (Ct. App. 1988).

But cf. Merton, *Priorities in Scientific Discovery*, in THE SOCIOLOGY OF SCIENCE 286, 309-16 (N. Storer ed. 1973). Although attorney's training seems to make us skeptical about physicians--perhaps because we only read the cases of medical abuse--Merton argues that scientists' "moral integrity" combined with the tremendous importance of their professional reputation makes researchers more trustworthy than the general population. *Id.* at 311.

125. *E.g.*, Motschenbacher v. R.J. Reynolds Tobacco Co., 498 F.2d 821 (9th Cir. 1974) (cigarette manufacturer was liable to a race car driver because they used his unique car markings in an advertisement leading people to believe it was the plaintiff). *See generally* PROSSER & KEETON ON TORTS, *supra* note 3, at 851-54.

126. *E.g.*, Bi-Rite Enters. v. Bruce Miner Co., 757 F.2d 440, 442 (1st Cir. 1985) (popular music performers have a right to control the commercial exploitation of their photograph as displayed on a poster). *See generally* PROSSER & KEETON ON TORTS, *supra* note 3, at 852-54 (action requires that the thing in question be a symbol of a person's identity and that it be used to benefit the defendant).

Sometimes courts will choose either a privacy or a property interest as the basis for the action. For example, see Alonso v. Parfet, 171 Ga. App. 74, 318 S.E.2d 696 (1984) (laboratory was not liable for using a former director's name when the initial use was under

context, it gives a person a non-tangible proprietary interest in her cells.[127] The treatment of DNA as part of a person's identity is consistent with recent case law because a person has a privacy interest in her body-matter,[128] and the doctor benefits unjustly by marketing the unique property without the patient's permission.[129]

Genes are the basic determinants of behavior and development; therefore, it is necessary to look beyond the limited scope of tangible property concepts when speaking about the unauthorized use of this substance. The courts should draw an analogy between the exclusive right to exploit one's likeness and the physician's use of a patient's DNA[130] as a model for production of an identical species. Genes, like photographs or names, are valuable only because they contain the unique properties of the individual.[131] "All human traits, including weight, strength, height, sex, skin color, hair texture, fingerprint pattern, blood type, intelligence and aspects of personality (for example, temperament), are ultimately determined by the information encoded in the DNA."[132] The value of human genes is determined by their individual traits and behaviors;[133] therefore, an individual should maintain the right to commercially exploit those traits.

Most states have enacted statutes that give individuals the sole authority to exploit their likeness. For example, in virtually every state,

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an implied license), *rev'd on other grounds*, 253 Ga. 749, 325 S.E.2d 152 (1985). In this case, the plaintiff based his action on an invasion of privacy, but the court recognized that the tort consisted of four parts. The fourth was "appropriation to a defendant's advantage of a plaintiff's name," *id.* at 698, which sounds more like an action for unjust enrichment than a privacy action.

127. *See generally* Comment, *Conversion of Choses in Action*, 10 FORDHAM L. REV. 415 (1941) (explaining how the tort of conversion is being used to apply to misappropriation of non-tangible property and how the use of the tort should be expanded in the future).

> The courts are endeavoring to find remedies for the new wrongs which have been made possible as a result of the development of new business and new business methods; the law of unfair competition has been expanded to meet some situations, the law of quasi-contract to meet others. There seems to be a field for the expansion of the law of conversion to meet situations which properly call for relief and which have not theretofore been accorded the protection of the courts.

Id. at 429 (footnotes omitted).

128. *See supra* notes 107-10 and accompanying text.

129. *See infra* notes 187-202.

130. This refers to a researcher using sections of DNA to clone itself. For a description of the process, see *supra* note 1.

131. Photographs and names are only representations of the individual. Genes are both a representation and a part of the individual herself.

132. *Moore*, 249 Cal. Rptr. 494, 508 (Ct. App. 1988) (quoting G. EDLIN, GENETIC PRINCIPLES — HUMAN AND SOCIAL CONSEQUENCES 406-07 (1984)).

133. Hood, *supra* note 1.

written consent is required before a person's name or photograph may be used for commercial purposes.[134] These statutes have been interpreted broadly to include a person's right to commercialize a voice,[135] a nickname,[136] a photograph,[137] or a proper name.[138]

Replication of human cells is arguably a clearer violation of an individual's right to exploit her own identity than the sale of a photograph. Not only do cloned cells look and act the same as the original, they may cause others to act like the patient as well.[139] Additionally, cells are more unique than a person's name. For example, in the Manhattan White Pages, there are twenty-four listings for "John Moore" and an additional thirty-four listings for "J. Moore"[140]—probably none of whom are the John Moore from the California lawsuit. However, John Moore's genetic make-up is, unlike his name, his alone.[141]

Alternatively, a patient should be granted a proprietary interest in her DNA under the theory that unique designs are protectable. For example, in *Gladstone v. Hillel*,[142] a custom jeweler successfully sued his former joint venturers for conversion after they had copied his designs.[143] Like Moore's genes, these designs were unique but not copyrighted.[144] Nevertheless, the court protected the jeweler's property interest and held that a converter of property cannot be permitted to benefit from his

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134. *See* Bi-Rite Enters., Inc. v. Bruce Miner Co., 757 F.2d 440 (1st Cir. 1985).

Some states, like Georgia, protect this proprietary interest under a "Fair Business Practices" statute, *see* GA. CODE ANN. § 10-1-372 (1988), while other states, like New York, protect this interest under a civil rights statute, *see* N.Y. CIVIL RIGHTS LAW §§ 50-51 (McKinney 1976). The effect of these statutes is to give people a legal interest in their identity which allows them to exert exclusive control over their likeness and prevent others from benefiting from the same. *E.g.*, Stillman v. Paramount Pictures Corp., 1 Misc. 2d 108, 147 N.Y.S.2d 504 (Sup. Ct. 1956) (a leading case protecting a person's right to exclusive use of her name), *aff'd*, 5 N.Y.2d 994, 157 N.E.2d 728, 184 N.Y.S.2d 856 (1959).

135. *E.g.*, Midler v. Ford Motor Co., 849 F.2d 460 (9th Cir. 1988) (Ford violated Bette Midler's right to identity by using a Bette Midler voice impersonator in a commercial).

136. *E.g.*, Carson v. Here's Johnny Portable Toilets, Inc., 810 F.2d 104 (6th Cir. 1987) (awarding Carson $31,661.96 in damages and enjoining defendant from using the name anywhere in the United States).

137. Topps Chewing Gum, Inc. v. Fleer Corp., 799 F.2d 851 (2d Cir. 1986) (right to identity in a photograph).

138. *E.g.*, *Stillman*, 1 Misc. 2d 108, 147 N.Y.S.2d 504 (Sup. Ct. 1956) (right to identity in a name), *aff'd*, 5 N.Y.2d 994, 157 N.E.2d 728, 184 N.Y.S.2d 856 (1959).

139. N.Y. Times, Mar. 8, 1990, at A1, col. 1.

140. NYNEX WHITE PAGES 1082 (Manhattan, Area Code 212) (1988-89). I am thankful that the plaintiff's name in that case was not John Smith. See *id.* at 1452.

141. *See supra* note 13.

142. 250 Cal. Rptr. 372 (Ct. App. 1988).

143. *Id.*

144. *Id.* at 374, 377.

wrong.[145] A physician who takes her patient's unique cells, without regard to the confidential physician-patient relationship,[146] should not be able to benefit after breaching this trust.[147]

E. Summary of a Patient's Property Interest in her Body-Matter

Case law strongly suggests that a person may have a property interest in her body-matter. Body-matter is within the dominion and control of the patient at the time of the operation. Body-matter can be devised,[148] it cannot be taken away without due process of law,[149] and a failure to assign a property interest in body-matter would result in injustice.[150] Furthermore, a person has a proprietary interest in her likeness[151] and her unique designs,[152] which should protect a patient from being damaged by a doctor's impermissible appropriation of her cells.

IV. THE INTENTIONAL EXERCISE OF CONTROL OVER THE CHATTEL: THE DESTRUCTION OF THE PATIENT'S INTERESTS

A. Intent

Conversion is an intentional tort[153] which involves the intentional "exercise . . . [of] dominion or control over [the] chattel."[154] Thus, a physician does not have to know that she is violating the law or that the body-matter still belongs to her patient.[155] The conversion simply must be

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145. *Id.* at 380.

146. *See* State *ex rel.* McCloud v. Seier, 567 S.W.2d 127, 128 (Mo. 1978) (en banc) ("[a] physician occupies a position of trust and confidence as regards his patient . . . and [it] is fixed by law.") (quoting Moore v. Webb, 345 S.W.2d 239, 243 (Mo. Ct. App. 1961)); *see also infra* notes 187-202 and accompanying text.

147. *But see* H.J., Inc. v. International Tel. & Tel. Corp., 867 F.2d 1531, 1547 (8th Cir. 1989) (the boundaries of personal property which give rise to a conversion action are "tangible property, or intangible property customarily merged in, or identified with some document.") (citing PROSSER AND KEETON ON TORTS, *supra* note 3, at 91-92, and RESTATEMENT (SECOND) OF TORTS §§ 22, 242 (1965)).

148. *See supra* notes 111-13 and accompanying text.

149. *See supra* notes 106-10 and accompanying text.

150. *See supra* notes 114-24 and accompanying text.

151. *See supra* notes 125-41 and accompanying text.

152. *See supra* notes 142-47 and accompanying text.

153. PROSSER & KEETON ON TORTS, *supra* note 3, at 92. "The intent required is not necessarily a matter of conscious wrongdoing. It is rather an intent to exercise a dominion or control over the goods which is in fact inconsistent with the plaintiff's rights." *Id.*

154. RESTATEMENT (SECOND) OF TORTS § 222A(1) (1965).

155. A defendant's good faith "is irrelevant to the issue of liability" in an action for

sparked by some willful act. When a physician experiments with body-matter and develops a cell-line, her actions unequivocally satisfy the intent requirement. She intentionally uses the patient's body-matter for experimentation, clones the patient's cells, and purposefully applies for a patent to exploit the patient's cell-line.[156]

B. Extent of the Interference

Conversion requires a significant interference with the plaintiff's property.[157] The key issue is whether the defendant's use is inconsistent with the plaintiff's property interest. For example, one who takes business documents from a file at the end of the business day, then photocopies and returns them before the next business day, would not be liable for conversion to a plaintiff who only used the documents, which did not contain any protectable secrets, during the day.[158] Although this taking is without justification and the taker asserts a right of dominion and control by photocopying the documents, the use is not substantially inconsistent with the businessperson's property right. The businessperson never loses the ability to use her files.[159] Yet, one may be liable for conversion even when she rightfully possesses the property, but uses it in a manner significantly inconsistent with another's interest.[160] For example, a person who legally obtains the right to possess building plans, but not the right to use the plans to construct a home, has committed the tort of conversion if she builds a home using the plans.[161] Conceptually, the difference between using photocopied documents and building from the plans is that the building of the house is a serious assertion of ownership over the plans and the right

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conversion. Shidler v. All Am. Life & Fin. Corp., 775 F.2d 917, 925 n.10 (8th Cir. 1985) (citing PROSSER & KEETON ON TORTS, *supra* note 3, at 93). In this case the court held that "single class voting procedure deprived minority shareholders of their basic property right to a meaningful voice in the conduct of corporate affairs" and they could therefore recover for the tort of conversion. *Id.* at 925-26. The court further found defendants strictly liable in the sense that it would not admit evidence that plaintiff could have avoided suffering any damage at all. *Id.* at 926.

156. *See supra* notes 10-15 and accompanying text.

157. RESTATEMENT (SECOND) OF TORTS § 222A(1) (1965).

158. *See* Pearson v. Dodd, 410 F.2d 701, 704 (D.C. Cir.) (the mere taking and photocopying of documents might give rise to a suit for "invasion of privacy," but ordinarily does not give rise to an action for conversion), *cert. denied*, 395 U.S. 947 (1969)).

159. *Id.*

160. RESTATEMENT (SECOND) OF TORTS § 228 (1965).

161. Acorn Structures, Inc. v. Swantz, 846 F.2d 923, 926 (4th Cir. 1988) (the initial action was for breach of contract and although the court did not definitively settle the conversion issue, the court stated that these facts could give rise to an action for conversion as defined by the RESTATEMENT (SECOND) OF TORTS § 228 (1965)).

to build from them.[162] The converter greatly benefits because she will not have to buy the right to build. Consequently, the builder suffers because she was deprived of the opportunity to sell her building services.[163]

The *Restatement (Second) of Torts* lists six factors to consider in determining whether the act has so seriously interfered with the plaintiff's rights as to warrant the forced sale of the property to the defendant. These are:

> (a) the extent and duration of the actor's exercise of dominion or control;
> (b) the actor's intent to assert a right in fact inconsistent with the other's right of control;
> (c) the actor's good faith;
> (d) the extent and duration of the resulting interference with the other's right of control;
> (e) the harm done to the chattel;
> (f) the inconvenience and the expense caused to the other.[164]

Using these criteria, it is easy to see why the photocopying of documents is not considered serious enough to warrant forcing the converter to pay the value of the plaintiff's property. Yet, the criteria demonstrate that the physician's use of body-matter is serious enough to force a sale. In the former case, the use is temporary. In the latter, the physician uses the property until it no longer has any value to the patient. Similarly, the photocopying is a minimal interference and therefore a minimal assertion of control. The physician who patents and commercially exploits her patient's cell-line, however, physically destroys the patient's cells and exclusively claims their unique property for her own monetary and professional gain.

The physician's interference with her patient's property interest

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162. In this case, the taker uses the plans as an owner to her benefit. The documents case would be identical if instead of merely photocopying the document, the taker had used them to get clients or in some other manner that looks as though the taker is acting as an owner.

163. Some use a definition of conversion which requires that the converter "use and benefit" from her appropriation of the owner's personal property and that the use be "in exclusion and defiance of the owner's rights." Centerre Bank v. New Holland Div. of Sperry Corp., 832 F.2d 1415, 1423 (7th Cir. 1987). However, a taker who benefits from another's property has seriously interfered with the owner's rights because profiting from personal property is something only an owner or authorized person may do.

Returning to the familiar physician-patient context, the physician arguably benefits when she obtains matter for research. There is no question that the physician benefits when she receives money and stock for the cloned cells. *See supra* notes 10-16 and accompanying text.

164. RESTATEMENT (SECOND) OF TORTS § 222A(2) (1965).

becomes progressively more severe. When she uses a patient's body-matter for experimentation, she has committed an unauthorized taking which may be actionable. This does not necessarily mean that it rises to the level of a conversion action.[165] At the experimentation stage,[166] her use is arguably more like photocopying at night than building a house with another's plans, because it is difficult to see how the physician benefits, and she is not asserting any type of permanent or exclusive interest.[167] When she develops a cell-line,[168] she begins to use the matter for a specific purpose. This step of the process is more clearly to her benefit, even though she has not profited or established any long-term claim to the right to use the body-matter.[169] When she obtains a patent,[170] she has clearly crossed the line and seriously violated her patient's property interest.[171] After receiving patent protection, she possesses the sole right to market her patient's genetic design to the exclusion of her patient, which permanently deprives the patient of any future benefits from her cells.[172] Therefore, by the time

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165. For example, it may be possible to bring an action for trespass — a "lesser wrong" — for which one must show "actual damage to the property" and for which one may only recover "the actual diminution in its value caused by the interference." Pearson v. Dodd, 410 F.2d 701, 706-07 (D.C. Cir.), *cert. denied*, 395 U.S. 947 (1969). The difference between the two actions is the severity of the interference with a property interest. As one court stated, "[t]he modern day tort of conversion . . . is generally applicable only to cases . . . in which there has been a major or serious interference with a chattel or with the plaintiff's right in it," while the interference might be difficult to ascertain in a trespass action. Baram v. Farugia, 606 F.2d 42, 44 (3d Cir. 1979) (once a settlement is paid the taker legally possesses the property).

However, a trespass action may be more difficult to establish than conversion because one must prove more than "nominal damages," which are enough to satisfy the damage requirement in a conversion suit. Additionally, the award for conversion is usually higher because one recovers at least the full value of the property converted regardless of damage. *Pearson*, 410 F.2d at 707.

166. *See supra* notes 1, 10 and accompanying text.

167. *See supra* notes 156-63 and accompanying text. Although the physician exercises control over the body-matter, the patient's proprietary interests in her body-matter could remain intact if the tissue was not destroyed. For example, the physician upon confirming that the tissue is unique and potentially valuable could inform the patient and help the patient exploit her matter. The patent could have both their names on it as developers of the cell-line, and the physician could offer to pay for permission to exploit her patient's genes or not exploit them at all.

168. *See supra* notes 1, 10-18 and accompanying text.

169. The physician has not obtained a patent or sold the body-matter or any rights associated with it.

170. *See supra* notes 11, 15 and accompanying text.

171. *Contra* RESTATEMENT (SECOND) OF TORTS § 222A comment d (1965) (there is "probably no type of conduct with respect to a chattel which is always and under all circumstances sufficiently important to amount to a conversion").

172. *See, e.g.*, Scripps Clinic & Research Found. v. Genentech, 666 F. Supp. 1379 (N.D.

the physician realizes profit from her patient's cells, conversion has taken place.

V. THERE CAN BE NO LEGAL JUSTIFICATION FOR A PHYSICIAN'S COMMERCIAL EXPLOITATION OF A PATIENT'S CELLS WITHOUT PERMISSION

A. Potential Justifications

In *Moore*, the defendants advanced three justifications for taking and using plaintiff's body-matter: the plaintiff abandoned his body-matter;[173] he consented to all uses by consenting to the removal of his spleen;[174] and he knew there was a possibility that his tissue might be used for "purposes other than treatment."[175] Therefore, the defendants contended that no conversion occurred.[176]

The court correctly dismissed the second two claims as being unsound.[177] While the premise—no conversion occurs when a patient consents to the use of her body-matter—is sound,[178] the physician may not exceed her authorized use.[179] To the contrary, conversion "can . . . occur following the lawful entrustment of the property to the defendant,"[180] if the defendant exceeded her "authorized use."[181] Moore authorized the physician to remove his spleen, but never authorized the use of the body-matter for experimentation.

The court was also correct in not implying consent from the

Cal. 1987) (licensee and owner of blood-clotting factor successfully defended the exclusivity of his patent).

173. *Moore*, 249 Cal. Rptr. 494, 509 (Ct. App. 1988).

174. *Id.* at 510-11.

175. *Id.*

176. *Id.* at 511.

177. *Id.* at 510-11.

178. *E.g.*, Pan Eastern Exploration Co. v. Hufo Oils, 855 F.2d 1106, 1125 (5th Cir. 1988) (a plaintiff must plead and prove lack of consent because it is an element of the conversion action).

179. *See* RESTATEMENT (SECOND) OF TORTS § 228 (1965).

The argument that a person may not be sued for conversion if she had permission to exercise any control over the property is absurd. If this were true, a person who loaned her lawnmower to a neighbor for the day would have no action in tort if the neighbor refused to return the mower and used it until it wore out.

180. *See, e.g.*, United States v. Stockton, 788 F.2d 210, 216 n.5 (4th Cir.) (a criminal case for conversion which addresses the standards for the tort as well as the penal action), *cert. denied*, 479 U.S. 840 (1986).

181. RESTATEMENT (SECOND) OF TORTS § 228 (1965).

circumstances.[182] The *Restatement (Second) of Torts* states,

> [i]n determining what is implied, the test is frequently whether a reasonable [person], in the light of all of the circumstances, would regard the use as of such a character that it would have been included within the agreement if the parties had anticipated the occasion for such a use. The character of the chattel, its adaptability to the use made of it, and the purposes for which it is customarily used, are factors to be considered.[183]

It is possible that some people would forfeit their property rights without consideration, allowing a physician to commercially exploit their cells and thereby excluding themselves from all economic benefit. However, the person who knowingly acts to her economic detriment would probably not be considered a "reasonable person." It is clear that the average person would not want to forfeit the opportunity to share in economic benefits.[184]

The most problematic of the three justifications asserted in *Moore* is the issue of abandonment. As stated in *Moore*, "[t]he essential element of abandonment is the intent to abandon. The owner of the abandoned property must be 'entirely indifferent as to what may become of it or as to who may thereafter possess it.'"[185] People leave their DNA every time they drop a hair, cut their finger, or scrape an elbow, and few if any are concerned about the fate of the body-matter. Arguably, Moore and most other patients do not care what happens to their body-matter either. However, abandonment is a question of fact for the jury to decide.[186]

B. Fiduciary Relationship

Abandonment is inconsistent with the physician-patient relationship. The physician-patient relationship is a fiduciary one.[187] "That is, when a patient comes to a doctor for medical assistance, the patient places a trust and confidence in the doctor to act in his best interest."[188] As will

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182. *Moore*, 249 Cal. Rptr. 494, 510-11 (Ct. App. 1988).

183. RESTATEMENT (SECOND) OF TORTS § 228 comment c (1965).

184. The Chicago School of Economics believes that rational people act in their own personal interest. *See, e.g.*, R. POSNER, THE ECONOMICS OF LAW (3d ed. 1986).

185. *Moore*, 249 Cal. Rptr. at 509 (citing Martin v. Cassidy, 149 Cal. App. 2d 106, 110, 307 P.2d 981, 984 (quoting 1 CAL. JUR. 2d *Abandonment* § 2, at 2)).

186. *Id.*

187. *See generally* 61 AM. JUR. 2D *Physicians, Surgeons, and Other Healers* §§ 166-73 (1981).

188. Yates v. El-Deiry, 160 Ill. App. 3d 198, 513 N.E.2d 519 (1987) (allowing plaintiff's physician to testify at medical malpractice hearing was a breach of the physician-patient fiduciary relationship and entitled the plaintiff to a new trial).

be demonstrated, when a physician patents a patient's body-matter, she is breaching her fiduciary duty.[189]

One of the fundamental principles of a fiduciary relationship is that the dominant member may not use the position to her financial benefit and to the other person's detriment.[190] For example, if a patient gives a substantial gift to her physician, the gift is "presumed void."[191] Similarly, without full disclosure to her patient, a physician may not receive "kickbacks" for referring the patient's case to another professional.[192] These rules prevent physicians from using their positions of trust to induce their patient into giving them gifts,[193] and from creating financial interests which may interfere with their complete loyalty to their patient.[194]

State legislatures similarly prevent physicians from obtaining secret profits from their patients. For example, a physician may not refer a patient to a pharmacy in which she has a financial interest.[195] In addition, some states prohibit physicians from referring patients to any person or institution in which they have a financial interest.[196] Similarly, some states prohibit physicians from splitting fees without informing their patients.[197]

The danger created by a physician covertly making profits from a patient's biological material is much greater than any of the cases mentioned thus far. She acquires the blood or tissue specimen while the patient is on an operating table or in another helpless position--relying on the physician to act in her best interests.[198] Furthermore, the body-matter is taken solely

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189. The law dealing with the fiduciary relationship between physician and patient is in its infancy. *See* Note, *Breach of Confidence: An Emerging Tort*, 82 COLUM. L. REV. 1426 (1982). However, the conclusions in this section assume that the courts will recognize that the advancements in biotechnology have given physicians the potential for an economic interest which could hurt their patients and will, therefore, be willing to treat the physician-patient relationship as it does other fiduciary relationships.

190. *E.g.*, Boyd v. Cooper, 269 Pa. Super. 594, 410 A.2d 860 (1979) (shareholders in pizza business sued other shareholders to prevent them from selling at a competing business; information acquired in confidential relationship may not be used to the corporation's detriment).

191. Estate of McRae, 522 So. 2d 731 (Miss. 1987) (while a physician may inherit from his patient under certain circumstances, the presumption is that the gift is void due to the fiduciary nature of the relationship) (emphasis deleted).

192. Lilly v. Commissioner, 188 F.2d 269 (4th Cir. 1951) (receiving kickbacks for referring a patient to another professional is inconsistent with the physician-patient fiduciary relationship), *rev'd on other grounds*, 343 U.S. 90 (1952).

193. 522 So. 2d at 737.

194. If a physician can get kickbacks for referring her patients to another doctor, she may be tempted to refer patients unnecessarily or to someone who pays the largest kickback regardless of which person would be best for her patient.

195. *E.g.*, ALA. CODE § 28-4-160 (1975); FLA. STAT. ANN. § 458.327 (West Supp. 1990); MINN. STAT. ANN. § 147.091(1)(p)(3) (West 1989).

196. *E.g.*, W. VA. CODE § 30-3-14 (Supp. 1989).

197. *E.g.*, MINN. STAT. ANN. § 147.091(1)(p)(2) (West 1989).

198. There is extremely strong dicta in cases relating to the testimony of physicians in

for the physician's benefit and destroys the patient's right to exploit it.

Unlike the relatively small amount of money that a physician can make from referring a patient to a pharmacy which she owns or co-owns, the physician who obtains research material has the potential for a huge windfall from a cell-line.[199] For example, in *Moore* the physician was able to obtain $440,000 and 75,000 shares of stock from a single undisclosed sale of his patient's cell-line.[200] Therefore, if the legislatures were concerned enough to enact statutes designed to prevent physicians from secretly making minuscule profits,[201] it is reasonable to assume that they also wanted to prevent potentially more troublesome abuses which they did not contemplate.

The argument that a patient who allows a physician to remove her body-matter has abandoned her interest is an attempt to legally justify the physician's impermissible appropriation. It would allow the physician to violate the fiduciary relationship by benefiting from information and property obtained in her fiduciary capacity to her patient's detriment. This is a direct breach of her fiduciary duty to her patient and cannot be justified.[202] The physician is in the better position to know of the value or potential value of the patient's body-matter, and it should be the physician who suffers the financial consequences of failing to ask permission to exploit the patient's cells.

VI. DAMAGES

Although this Note demonstrates that a conversion action is appropriate when a physician commercially exploits her patient's cells without permission, the action is meaningless unless damages can be obtained. Generally, the damages in a conversion action are extremely favorable to the plaintiff; however, they may vary as justice requires.

The traditional measure of damages in an action for conversion is the "value of the property wrongly appropriated plus interest."[203] An alternative measure is sometimes stated as "either [the] fair market value on the date of conversion, or [the] value at any time subsequent to

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court that suggest that a physician's duty to act in the best interest of her patient is extremely broad. *See, e.g.*, State *ex rel.* Stufflebam v. Appelquist, 694 S.W.2d 882, 885 (Mo. App. 1985) (physician has a "duty to act with the utmost good faith").

199. *See supra* notes 2, 12 & 18 and accompanying text.

200. *See supra* note 28.

201. Potentially, the amount of money to be made from sending a patient to a drugstore which you own or splitting a medical fee can add up over time, but it is unlikely that these abuses could potentially add up to hundreds of thousands of dollars.

202. *See supra* note 190 and accompanying text.

203. *E.g.*, Chrysler Credit Corp. v. Perry Chrysler Plymouth, 783 F.2d 480, 484 (5th Cir. 1986).

conversion and before trial, whichever is greater, with interest from the date of conversion."[204] As discussed earlier, while it is not clear whether the conversion took place when the physician used the body-matter for experimentation,[205] it is clear that when the physician applied for a patent there was a conversion of the patient's proprietary interests.[206] The damages may be the amount that the biotechnical company paid for the rights to identical matter less the directions for their use which was provided by the physician. The value of the property at the time of conversion is only the starting point for damages. General damages for any tort are "the amount which will compensate for all detriment proximately caused thereby."[207] Therefore, if the actual damages which the patient suffered exceed the value of the body-matter, courts have recognized that the plaintiff may be awarded damages in excess of the property's value.[208] For example, when a defendant converted a $50 dog, a plaintiff recovered $50 plus an additional $100 for mental anguish and humiliation associated with losing the dog.[209] If a patient suffers anguish or humiliation in excess of the value of her DNA, she would, therefore, be able to recover these additional damages. Additionally, courts have awarded plaintiffs damages which they suffered in their attempt to recover their converted property.[210] In a recent California case, the plaintiff was awarded $100 an hour for the time he spent trying to recover his converted property.[211] His award, for time alone, was $108,000.[212]

Finally, damages may be increased or decreased depending upon the circumstances of the case. If the circumstances are aggravated,[213] then punitive damages may be awarded.[214] If the physician has demonstrated

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204. Brown v. Campbell, 536 So. 2d 920, 922 (Ala. 1988) (managing shareholders who kept stock certificates committed the tort of conversion and were ordered to pay compensatory damage of the maximum value of the property between the act of conversion and trial).

205. *See supra* notes 166-69 and accompanying text.

206. *See supra* notes 171-72 and accompanying text.

207. Kinetics Technology Int'l Corp. v. Fourth Nat'l Bank of Tulsa, 705 F.2d 396, 403 (10th Cir. 1983) (traditional damages for conversion are meant to augment tort damages, not replace them).

208. *Id.*

209. Lincecum v. Smith, 287 So. 2d 625, 629 (La. App. Ct.), *cert. denied*, 290 So.2d 904 (La. 1974).

210. *E.g.*, Gladstone v. Hillel, 250 Cal. Rptr. 372 (Ct. App. 1988) (jewelry manufacturer was awarded damages for time he spent trying to recover his molds and designs which were taken by former co-venturers).

211. *Id.* at 381.

212. *Id.*

213. This means that there is "[f]raud, ill will, malice, recklessness, wantonness, oppressiveness, willful disregard of the plaintiff's rights, or other circumstances tending to aggravate the injury." 53 AM. JUR. 2d *Conversion* § 114 (1985) (footnotes omitted).

214. *E.g.*, Testerman v. H & R Block, 22 Md. App. 320, 324 A.2d 145 (1974) (tax

good faith, he may be held accountable for less than the entire value of the property.[215]

VII. CONCLUSION

This Note has discussed the tort of conversion as it relates to a physician who commercially exploits a patient's body-matter without her consent. As has been demonstrated, individuals have a tangible property interest in their body-matter[216] as well as an interest in their likeness[217] and unique designs[218] which are intentionally[219] and significantly interfered with[220] by a physician who exploits this matter without their permission. Therefore, the patient may justifiably seek redress in a conversion action,[221] forcing the defendant to buy her chattel[222] and compensate her for all damage proximately caused by the conversion,[223] unless the circumstances warrant increasing or decreasing the award.[224] In addition, the fiduciary nature of the physician-patient relationship makes it difficult for the physician to legally justify secretly using material and information gathered within the confidential physician-patient relationship to her benefit and her patient's detriment.[225] In short, the physician must ask for her patient's consent before exploiting her patient's DNA.

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preparer's client may sue tax preparer under a conversion theory for punitive damages as well as mental anguish when behavior warrants the award), *rev'd.*, 275 Md. 36, 338 A.2d 48 (1975) (punitive damages were not recoverable because no actual malice was shown).

215. Shidler v. All Am. Life & Fin. Corp., 775 F.2d 917 (8th Cir. 1985) (citing the RESTATEMENT (SECOND) OF TORTS, *supra* note 3).

216. *See supra* notes 81-119 and accompanying text.

217. *See supra* notes 125-41 and accompanying text.

218. *See supra* notes 142-47 and accompanying text.

219. *See supra* notes 153-56 and accompanying text.

220. *See supra* notes 157-72 and accompanying text.

221. *See supra* notes 44, 49 & 159 (explaining that the severity of the conversion damages require more than a mere interference with a property interest).

222. *See supra* notes 195-96 and accompanying text (explaining the traditional and alternate measure of damages for conversion).

223. *See supra* notes 198-202 and accompanying text.

224. *See supra* notes 213-15 and accompanying text.

225. *See supra* notes 187-202 and accompanying text.