

# How Advances in Science Change Halakhah: Assisted Reproductive Technologies (ART) and the Redefinition of Parenthood

Cong. Shir Chadash, Yerushalyim – Sinai & Synapses

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## I. Before ART

### 1. Genesis 1:27-28; 2:18, 24 – בראשית א:כז-כח, ב:יח, כד –

וַיֹּאמֶר אֱלֹהִים אֶת-הָאָדָם בְּצָלָמוֹ, בְּצָלָם אֱלֹהִים בָּרָא אֶתְךָ : זָכָר וָנְקָבָה, בָּרָא אֶתְכֶם.

וַיֹּברַךְ אֲתֶם, אֱלֹהִים, וַיֹּאמֶר לְהֶם אֱלֹהִים פְרוּ וּרְבוּ וְמֶלֶאוּ אֶת-הָאָרֶץ, וְכָבֵשָׁה ; וְרַדוּ בְּדִגְתָּת הַיּוֹם, וּבְעוֹף הַשָּׁמַיִם, וּבְכָל-חַיָּה, קְרֻמְשָׁת עַל-הָאָרֶץ.

וַיֹּאמֶר ה' אֱלֹהִים לְאַתְּזֹב הַיּוֹת הָאָדָם לְבָדוֹ אָעַשְׂה-לּוֹ עֹזֶר כְּנָגְדוֹ . . . עַל-פָּנָיו יַעֲזֹב-אִישׁ אֶת-אָבִיו וְאֶת-אָמוֹ וְדַבֵּק בָּאָשְׁתוֹ וְהִיו לְבָשָׁר אֶחָד :

1:27 And God created the Adam in God's own image, in the image of God He created the Adam; male and female God created them. 2:28 And God blessed them; and God said to them, “Be fruitful and multiply, and fill the earth, and subdue it; and rule over the fish of the sea and over the birds of the sky, and over every living thing that moves on the earth.” ... 2:18 And the Lord God said: “It is not good that the Adam should be alone; I will make him a match of an *eizer kenegdo* - a helpmate.” 2:24. Therefore shall a man leave his father and his mother, and shall cleave to his wife; and they shall be one flesh.

### 2. RASHI (FRANCO-GERMANY, 1040-1105)

Genesis (1:27) Male and Female God created them. A Midrash Aggadah explains that at first God created the Adam (person) with two faces, i.e., both Male and Female, and afterwards split them apart.

Genesis (2:18) A helper against him. If he is meritorious, she is “a Helper.” If he is not meritorious, she is “Against Him” to wage war, i.e. to oppose him.

(24) One Flesh. The child is formed through the two of them and there [in the child] their flesh becomes one.



רש"י בראשית (א:כז) זָכָר וָנְקָבָה בָּרָא אֶתְכֶם. מִזְרֶשׁ אֲגָדָה (ב"ר ח:א)  
שָׁבְרָאוּ שְׁנֵי פְּרִצּוֹפִים בְּבָרִיהָ רָאשׁוֹנָה, וְאַחֲרֵ כֶּבֶשׂ חַלְקוֹ :  
(ב:יח) עֹזֶר כְּנָגְדוֹ. זָכָה "עֹזֶר", לֹא זָכָה "כְּנָגְדוֹ" לְהַלְלוּם :  
(ב:כד) לְבָשָׁר אֶחָד. סְנוּלָד נֹצֵר עַל יָדֵי שְׁנֵיהם, וְשָׁם נָעָשָׂה בָּשָׁרָם אֶחָד :

### 3. Plato's Symposium 189c–193e, Speech of Aristophanes, the famous comic poet & playwright

... for the original human nature was not like the present, but different. The sexes were not two as they are now, but originally three in number; there was man, woman, and the union of the two, having a name corresponding to this double nature, which had once a real existence, but is now lost, and the word 'Androgynous' is only preserved as a term of reproach...Each of us when separated, having one side only, like a flat fish, is but the indenture of a man, and he is always looking for his other half...For the intense yearning which each of them has towards the other does not appear to be the desire of lover's intercourse, but of something else which the soul of either evidently desires and cannot tell, and of which she has only a dark and doubtful presentiment...And the reason is that human nature was originally one and we were a whole, and the desire and pursuit of the whole is called love.

#### תלמוד בבלי מסכת סנהדרין דף יט עמוד ב –

**לلمדך שכל המגדל יתום בביתו – מעלה עליו הכתוב כאילו ילדו**

Whoever raises an orphan in his home, Scripture accounts it is as if he gave birth to the child. Rabbi Chanina learns [the above lesson] from here: “And the women neighbors gave him a name saying, ‘A son is born to Naomi’” (Ruth 4:17). But was it Naomi who gave birth? Didn’t Ruth give birth? Rather, Ruth bore him and Naomi raised him. Therefore, he is identified as Naomi’s child. Rabbi Yochanan says from here: “And his Judahite wife bore Jered, father of Gedor; Heber, father of Soco; Jekutiel, father of Zanoah. There were the sons of Bithiah, daughter of Pharaoh, whom Mered married” (I Chronicles 4:18). But did Bithiah bear Moses? Didn’t Jocheved give birth to Moses?! Rather, Jocheved bore him, but Bithiah raised him. Therefore, Moses was identified as her child. Rabbi Elazar learns it from here: “By Your arm You redeemed Your people, the children of Jacob and Joseph” (Psalms 77:16). Now, did Joseph father [the twelve tribes]? Didn’t Jacob father them?! Rather, Jacob fathered them, but Joseph supported and sustained them. Therefore, they [i.e., the twelve tribes] are called by his name. Rabbi Shmuel bar Nachmani said in the name of Rabbi Yonatan: Whoever teaches Torah to his fellow’s child, Scripture accounts him as the child’s parent. As it is said, “This is the lineage of Aaron and Moses at the time that the Lord spoke with Moses on Mount Sinai” (Number 3:1). But in the very next verse it says, “These were the names of Aaron’s sons...” (3:2). [The intent of the Torah here is] to say to you that Aaron fathered and Moses taught them, and therefore they are [also] called by his name.

**Summary: Before ART, natural procreation/biological parenthood and social parenthood/adoption.**

#### **II. After ART – The Fragmentation of the Procreative and Parental Process**

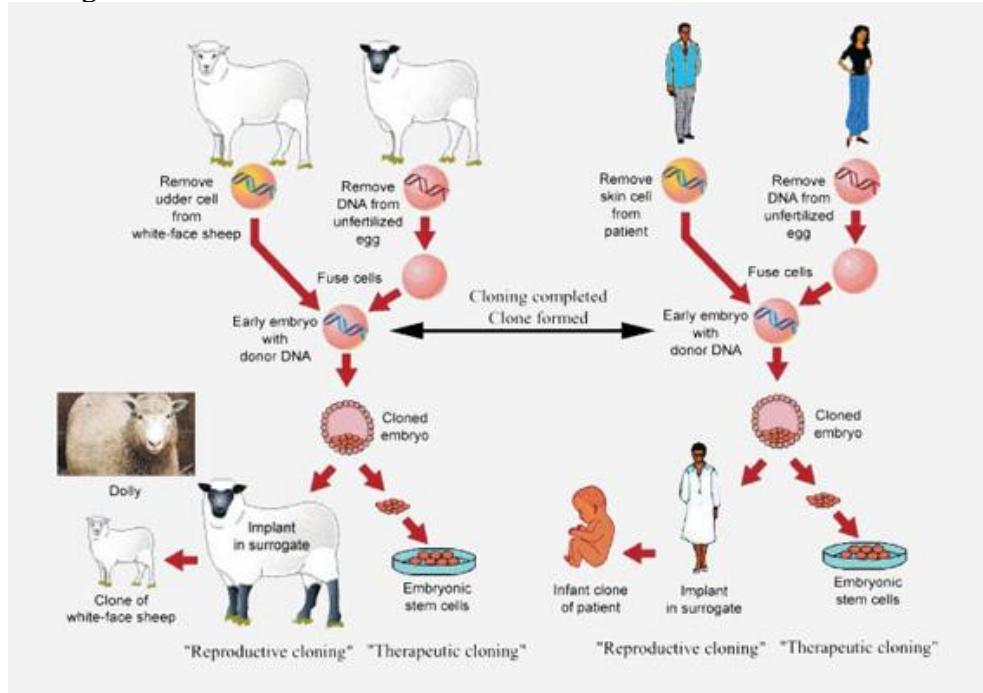
- Two fundamental questions:**
- 1. Should there be a monist or pluralist standard for deciding parenthood?**
  - 2. Should the grounds for parenthood be causal or voluntarist?**

Causal accounts of parenthood potentially include any biological or non-biological substantive donation or effort that contributes to the existence of a child. Parental candidates therefore include genetic donors, gestational carriers, parturitional actors, procreative facilitators, and if extended beyond the moment of birth, any other contributors of labor and/or resources to the support and development of the child until the child reaches the presumed age or state of self-sufficiency.

**A. Forms of Surrogacy.** TS = Traditional Surrogacy; GS = Gestational Surrogacy.

Case #	Surrogacy	Conception	Ovum Donor	Sperm Donor	Gestation/Parturition	Social Mother	Social Father	Collaborators
1	TS	AI/Natural	Surrogate	Husband	Surrogate	Wife	Husband	3
2	TS	AI/Natural	Surrogate	Donor	Surrogate	Wife	Husband	4
3	GS	IVF	Wife	Husband	Surrogate	Wife	Husband	3
4	GS	IVF	Wife	Donor	Surrogate	Wife	Husband	4
5	GS	IVF	Donor	Donor	Surrogate	Wife	Husband	5
6	GS	IVF	Donor	Husband	Wife	Wife	Husband	3
7	GS	IVF	Donor	Donor	Wife	Wife	Husband	4
8	GS after embryo/fetal transplant	AI/IVF or Natural	Wife	Husband	Surrogate	Wife	Husband	3
9	GS? Ovarian Transplant	Natural	Donor	Husband	Wife	Wife	Husband	3

## B. Reproductive Cloning



### תלמוד בבלי מסכת סנהדרין דף סה עמוד ב – 1.TB Sanhedrin 65b

רבה ברא גברא, שדריה לкомיה דרבוי זירא. הוּא קא משטעי בהזיה, ולא הוּא מחדור ליה. אמר ליה: מן חביריא את, הזר לעפריך. רב חנינה ורב אושעיא הוּו יתבי כל מעלי שבתא ועסקי בספר יצירה, ומיברו להו עיגלא תילתא, ואכללי ליה Rava created a person, and sent him before Rav Zeira. Rav Zeira tried speaking to him, but he would not reply. Rav Zeira said to him: ‘You are from one of my colleagues, return to your dust. Rav Chanina and Rav Ush’aya would sit [together] every Sabbath eve, delving into *Sefer Yetzirah – The Book of Creation*, and would create for themselves a third-grown calf, which they would eat.

### 2.Rabbi Tzvi Ashkenazi (1658-1718), Responsa Chakham Tzvi 1712, no. 93

I am in doubt as to whether a person created [mystically] through *The Book of Creation*, like the case that the [Sages] told in [TB] Sanhedrin (65b), “Rava created a person...,” and as they attest regarding my grandfather, our illustrious master and teacher Rabbi Eliyahu, chief justice of the holy community of Chelm, if [such a creature] may count toward the ten [required for a prayer quorum] ... Since [the requirement of a quorum is based on] the verse “I will be sanctified amidst the Children of Israel” (Leviticus 22:32), he should not join in, or perhaps since they uphold in [TB] Sanhedrin (19a), “Whoever raises an orphan in his home, Scripture accounts it as if he had begotten him...,” here too since [the golem] is the handiwork of righteous ones, the [golem] is included in the Children of Israel since the handiwork of the righteous are in fact their progeny.” It appears to me, since we find that Rav Zeira said, ‘you are [the creation] of my colleagues, return to your dust’ (TB Sandhedrin 65a), and we see he killed him, and if it should enter your mind that there was a benefit to add him to the ten [of a prayer quorum] for sacred matters, then Rav Zeira would not have removed him from the world. Even though there is no prohibition of spilling [its] blood, for Scripture specifically [requires] “Whoever sheds the blood of *haAdam beAdam* – a person [born] within a person, his blood shall be shed” (Genesis 9:6),<sup>1</sup> only a person that was formed within a person – that is, a fetus that was formed in his mother’s womb –is someone for whom one is culpable of murder ...

<sup>1</sup> Genesis 9:6 reads: “Whoever sheds the blood of man, by man shall his blood be shed; for in His image did God make man.” The Rabbis midrashically read the verse with alternate syntax as, “Whoever sheds the blood of a person within a person...,” thus establishing a Noahide prohibition against feticide. Ashkenazi here seems to extend that midrashic reading as limiting the prohibition against murder to people who were gestated within and delivered by a woman.

Bleich, Rabbi J. David. 1972. "Survey of Recent Halakhic Periodical Literature: Host-Mothers." *Tradition* 13, no. 2 (Fall): 127-9.

Weiss, Rabbi Asher. 2013. "Sources on the Halachic Status of Creating Three Parent Child. <http://en.tyunah.org/2013/12/29/triple-parent-ivf/>.

Loike, Prof. John D and Rabbi Moshe D. Tendler. 2011. "Halacha and Bioethics." *The Journal of Halacha and Contemporary Society* 61 (Spring): 92-117.

Loike, Prof. John D and Rabbi Moshe D. Tendler. 2014. "Creating Human Embryos Using Reproductive Cloning Technologies." *The Journal of Halacha and Contemporary Society* 67 (Spring): 37-60.

Bleich, Rabbi J. David and Prof. Arthur J. Jacobson. 2015. *Jewish Law and Contemporary Issues*. Cambridge: Cambridge University Press.

Bleich, Rabbi J. David. 2015. "Mitochondrial DNA Replacement: How Many Mothers?" *Tradition* 48, no. 4 (Winter): 60-85.

### **3. Rabbi Bleich 1972, 129, "Host-Mothers"**

However, the role of the natural mother in determination of identity is a dynamic one and analogous to that of "the seed of the father." It may therefore be argued that, according to those who assert with reference to classification of hybrids that "the seed of the father is to be considered" in the case of an already fertilized ovum the maternal relationship between the child and the donor mother is to be "considered" no less than "the seed of the father." Consideration must also be given to the possibility that perhaps two maternal relationships may exist simultaneously just as maternal and paternal relationships exist at one and the same time. The child would then in effect have two "'mothers,'" the donor mother and the host mother.

According to some authorities, however, the donor mother alone may be viewed as the mother in the eyes of Jewish law. There are those who maintain that the prohibition against feticide is applicable from the moment of conception and deem the fetus to be a nascent human being even in the earliest stages of gestation. According to this view, the zygote may perhaps be viewed as having already acquired identity and parentage.

### **4.Talmud Bavli, Chullin 79a**

ולחנניה, כתיב אותו - דמשמע זכר, וכתייב בנו מי שבנו כרווך אחוריו, דמשמע נקבה, הילך - נוגה בין בזקרים לבין נקבות. אמר רב הונא בר חייא אמר שמואל: הלכתא כחנניה. ואודה שמואל לטעמה: דתנן, ר' יהודה אומר: הנולדין מן הסוס, אף על פי שאביהן חמור - מותרין זה בהזה, אבל הנולדין עם החמור מן הסוס - אסורין; ואמר רב יהודה אמר שמואל: זו דברי ר' יהודה, דאמר אין חוששין לזרע האב, אבל חכמים אומרים כל מני פרדoot אחת זו, מאן חכמים - חנניה הוא, דאמר חוששין לזרע האב, והאי בר חמרה וטסיה - כוללו זהה מינא ניניהו

According to Hananiah, however, [the implication of the verse, Lev 22:28, "And whether it be cow or ewe, ye shall not kill it and its young both in one day," is this]: It says: 'it', which indicates the male parent, and it also says: 'its young', which relates to that parent to whom the young clings; hence it is clear that the law applies both to the male and female parent.

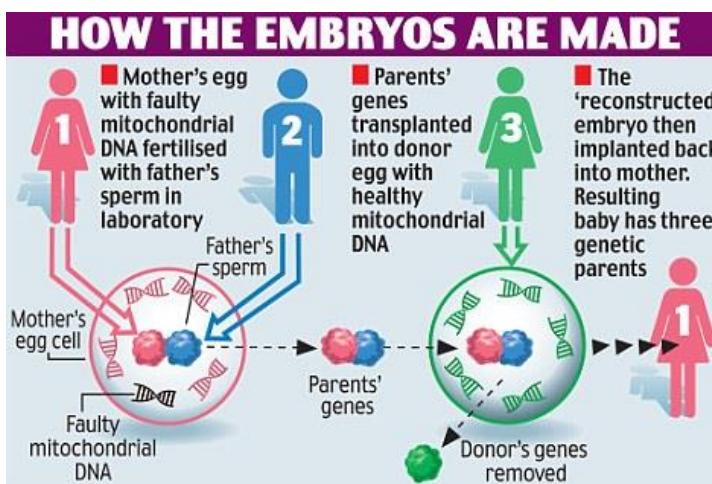
R. Huna b. Hiyya said in the name of Samuel: The halachah is in accordance with Hananiah's view. Moreover, Samuel is consistent in his opinion. For we have learnt: R. Judah says. The offspring of a mare (female horse), even though their sire was a donkey-stallion, are permitted [to interbreed]; but the offspring of a she-donkey may not [interbreed] with the offspring of a mare. But Rab Judah had stated in the name of Samuel that this was the view of R. Judah only who maintained that we do not take into consideration the seed of the male parent, the Sages however say: All mules are one kind. Who is meant by the 'Sages'? It is Hananiah, who maintains that we must take into consideration the seed of the male parent; accordingly the one is the offspring of a mare and an donkey-stallion and the other is the offspring of a she-donkey and a horse, but they are both one kind.

## **5. Rabbi Bleich and Prof. Jacobson 2015, 385**

It would appear that the principle of *hosheshin le-zera ha-av* (the seed of the father must be considered) is not founded on the fact that the father literally contributes *zera* (or sperm in a literal sense), but upon whether the father's donation of chromosomes or perhaps even of cytoplasm is of sufficient halakhic significance to cause the developing embryo to be regarded as the ... outgrowth of the father. If so, the principle ... is applicable to any and all sources of genetic material that contribute to the development of an animal. Accordingly, from the viewpoint of Halakhah, the animal, male or female, from which the cloned cell is taken is regarded as the "father" regardless of the organ from which the cell is taken."

## **6. Rabbi Bleich and Prof. Jacobson 2015, 385-6n76**

If the individual from whom the cell is taken is a male, his status is clearly that of a "father." If the individual is a female, it would be reasonable to assume that her status is that of a "mother" and that the clone, in effect, has two mothers. This assumption is based upon the premise that *hosheshin le-zera ha-av* (the seed of the father must be considered) is a principle concerning parenthood rather than with regard to paternity specifically. ... On the other hand, one might insist that a non-gestational parent is, by definition, a "father" rather than a "mother."



## **7. Rabbi Bleich 2015, 66**

A "three-parent" implantation procedure presents a halakhic issue of maternal identity echoing a similar question that arose much earlier with regard to surrogate motherhood. Surrogate motherhood presents a fairly clear-cut issue. Who is the mother, the biological mother, i.e., the genetic mother, or the gestational mother who gives birth to the child by means of parturition? In instances of mitochondrial DNA donation, the issue is whether it is the donor of maternal mitochondrial DNA or the woman whose nuclear DNA is present in the child who is the mother, or both? It may also be possible to combine mitochondrial DNA from multiple donors. If that becomes actual, would Halakhah recognize multiple maternal relationships?

6. In instances of mitochondrial DNA replacement, who is the mother? Is the mother the woman who produced the ovum from which the nucleus was taken or the donor of the mitochondrial DNA? If only some defective mitochondrial genes are replaced, who is the mother? In as yet unanticipated situations in which replacement genes are donated by multiple women, who is the mother? Is it possible that the infant may have multiple mothers since each donor of genetic material is to be considered to be one of the neonate's mothers? (ibid., 76)

## **8. Rabbi Bleich 2015a, 81-2**

The "seed" that transfers identity as a member of a species is clearly the male gamete. If that "seed" is to be regarded as a source for transmission of identity it would stand to reason that the female gamete should be

regarded in a similar manner, i.e., the female seed should be recognized as a source of parental identity no less so than the male seed. In effect, the genetic mother would have a status comparable to that of a genetic father.

## **9. Rabbi Asher Weiss on Three Parent Babies:**

וכך מסתבר גם בני"ד, דיש להכיר דהאם שכמעט כל החומר הגנטי מעצמה ובשרה היא האם עפ"י ההלכה והולד מתיחוס אחרת.  
ואף דיש מקום להתווכח ולומר adam באנו לדמותו מילתה למילתה, הרי בביטול ברוב אמרין הדבר המעמיד לא בטל, ועוד דכל דעתן טעם איננו בטל, וכך יש לדון גם בני"ד דכיוון דמעט החומר הגנטי שבקליפת הביצית יש בו מרכיב חיוני לח' adam והוא המעמיד אותו לא בטל.  
אך באמת עיקר חיל' ממנה נראה בעני ברור ופshoot דלא יתכן כלל מבחינת ההלכה שהיא לאדם שת' אמהות כשם שא"א שהיה לו שני אבות, או דהאי לאו דהאי, וא"כ בהכרח צריך להכיר בין זו לזה, ומשו"כ נראה פshoot דצරיך לילך אחר העיקר שביעיריים ולהתעלם מן הטפל שבטפליים.  
ומשו"כ נראה דהולד מתיחוס אחרி אמו לכל דבר אחר וגרעין הביצית ממנה היא.

And so it would seem in this case, that we should decide [based on the principle of nullification by majority] that should almost all of the genetic material come from herself and her flesh then she is the halakhic mother and the child follows after her lineage.

And even though there is room to dispute this and say that if we seek to compare one matter to another, in the case of nullification by majority we say that a catalyzing/establishing agent is not nullified, and anything that gives forth taste is not nullified, then too in our case since the minority of genetic material that is in the egg casing is an essential ingredient for human life then it is a catalyzing/establishing agent and isn't nullified.

Even so, in truth, my foundational point is that it is clear and obvious in my eyes that it is not possible from a halakhic perspective for a person to have two mothers, just as it is not possible for a person to have two fathers, and if one is the mother the other isn't, if so then by necessity we must decide between the two, and therefore it appears obvious that we must follow the essence of the principals and remove ourselves from the subsidiary of the nonessentials. And therefore it would appear that the lineage of the offspring follow its mother in all matters since the egg nucleus comes from her.

## **10. Prof. Loike and Rabbi Tendler 2014, 48**

Specifically, this technology raises two related halachic issues that are rarely discussed. First, what is the role of genetics in establishing a parental halachic relationship? Second, what is the role of *zerah* (sperm) in establishing fatherhood? Specifically, does halacha recognize fatherhood (paternity) status only in situations when a man provides sperm or can the status of halachic paternity be established when a man donates a non-sperm cell to generate an embryo that leads to a live birth?

## **11. Prof. Loike and Rabbi Tendler 2014, 48-9**

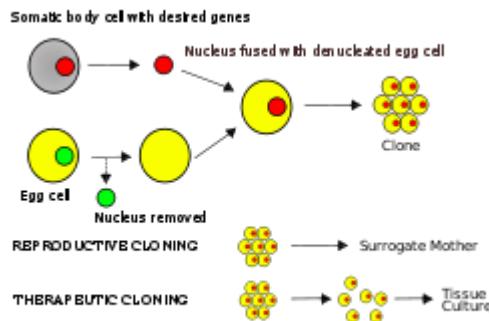
question. Should genetics be the sole determinant of parenthood? In the secular sphere, parenthood is generally established by genetic relationships where two individuals contribute cells (or DNA) leading to the formation of an embryo. However, legal parenthood can also be established via adoption in the absence of any genetic relationship between the adoptive parent and child.<sup>25</sup> There are situations, however, where a halachic definition of family relationship differs from a genetic definition. While halacha generally acknowledges the important role of genetics in parenthood, in the following cases genetics do not determine familial relationships. Specifically,

Specifically, this technology raises two related halachic issues that are rarely discussed.<sup>24</sup> First, what is the role of genetics in establishing a parental halachic relationship? Second, what is the role of *zeraḥ* (sperm) in establishing fatherhood? Specifically, does halacha recognize fatherhood (paternity) status only in situations when a man provides sperm or can the status of halachic paternity be established when a man donates a non-sperm cell to generate an embryo that leads to a live birth?

The halachic issue of genetic parenthood arising from SCNT has no clear or definitive halachic precedent. In this regard, we may follow the approach of the Rambam (see above) that halacha can rely on accurate scientific or medical information provided by experts to consider the current scientific status of this technology. The current consensus within the scientific community regarding the definition of human reproduction can be summarized as "the union of two nuclei in an egg to produce an embryo that can be gestated and where the mitochondrial genes are provided by the egg."<sup>25</sup> If this definition has universal acceptance within the scientific community as being accurate, it may also be recognized by the halachic community as well. This means that the nucleus of a sperm cell has no special paternity status over the nucleus of any other cell. Thus, a person donating genetic material, even from non-sperm cells, to create an embryo can be considered as the halachic father of the child.

Furthermore, this technology raises another halachic

<sup>24</sup> Margalit, Nehesiel; Levy, Ori; Loike, John D., "Advanced Reproductive Technologies: Reevaluating Modern Paternity", *Harvard Journal of Law and Gender*, in press 2013.



## 12. Prof. Loike and Rabbi Tendler 2011, 114-6

### *Nishtanah hateva*

Any discussion on bioethics or medical ethics must recognize that halacha respects new developments in scientific knowledge and technology. Rabbi Moses Isserles posits that halachic principles can adapt to new scientific procedures and discoveries. Applying unchanging halachic norms to new scientific realities can be termed *nishtanah hateva*, the "nature of things" has changed.<sup>26</sup> He interprets *nishtanah hateva* to mean that our knowledge of science or medicine has changed. Support for this position arises also from Rav Sherira Gaon who explicitly states that the sages of the Talmud were not

physicians, but made their medical recommendations based upon the medical knowledge of their times. Rav Sherira Gaon further states that their advice should not be construed as law and therefore it is not necessary to rely on their medicine but rather rely on experienced physicians.<sup>27</sup> Similarly, the Rambam seems to have considered most of the talmudic remedies to be ineffective.<sup>28</sup> The Rambam's son, Rav Avraham ben HaRambam says that *Chazal* gave these instructions based on the medical knowledge of their time, and they need not be considered as a halachic ruling.<sup>29</sup>

Rav Moshe Feinstein follows this philosophy of Rama and adds an important dimension to this guideline of *nishtanah hateva* by stating that under certain circumstances, we should follow the scientific knowledge of the times and rely on the assessment and rulings of the rabbis of every generation.<sup>30</sup>

<sup>24</sup> See *Ohar Haganah Gittin* 1b, response section, no. 37.

<sup>25</sup> *Midrash De'ot* 4:3.

<sup>26</sup> Rav Avraham ben HaRambam, *Mishmar Al HaYagur* 5:2. Da K. da; Agudat Avraham, *Orch Chaim* 17:1.