Principal Investigators.org

"Helping leading researchers in all fields with their *non-science* duties and responsibilities."

(800) 303-0129 (239) 331-4333 Fax: (239) 676-0146

Welcome

About P.I. Association Our Mission Key Staff Contact Us P.I. e-ALERT

Sign up for eAlert Back Issues Submit a Reader Question

Membership

Member Benefits Join the P.I. Assn. PI Exchange Forum Articles

Nominate a Colleague

Subscribe Today! About the Newsletter Editorial Advisory Board

Sample Issue Guarantee Certificate

Education & Service

Audio Conferences View Topics Buy Now FAQ National Conference

Books Store

View 🛒 T-Shirts

No. 19: Intellectual Property: Dividing Line Between "Fair Use" and Plagiarism?

Mon, Mar 8th, 2010 12:00:00 am

Sign Up to receive free weekly articles like these

Intellectual Property:

Dividing Line Between "Fair Use" and Plagiarism?

Reader Question: One of my postdoc students is preparing his first paper for a science journal. On reviewing his draft, I am concerned about the amount of direct quotation, and even paraphrasing, he has used from prior publications by others. I am happy he has at least done a thorough search of the previous literature, but what is the dividing line between "fair use" and plagiarism?

Expert Comments: Given the importance of building on previous work, it is inevitable that researchers and academicians will use in their articles a great deal of direct quotation and paraphrasing from previous literature. Thus, it is important for them to understand the boundaries of fair use. Put simply, fair use is a defense to copyright infringement when an author incorporates the original, creative works of others into his or her own work. Further, the determination of what is fair use is not strictly a quantitative analysis of "how much has been copied or borrowed."

The "fair use" doctrine, which is clearly delineated by statute, states as follows: "the fair use of a copyrighted work for purposes such as criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research, is not an infringement of copyright. In determining whether the use made of a work in any particular case is a fair use the factors to be considered shall include—

 the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes;

(2) the nature of the copyrighted work;

(3) the amount and substantiality of the portion used in relation to the copyrighted work as a whole;
(4) the effect of the use upon the potential market for or value of the copyrighted work"
17 U.S.C. Section 107.

While the statutory language includes "scholarship" and "research" as likely purposes for "fair use", an author should not conclude that use of the work of others for these purposes will always constitute fair use, for it may not. Rather, determination of fair use is made by a case-by-case, fact-intensive inquiry balancing the four listed factors (as well as any others that a court may deem relevant). As such, it is difficult to say, before the fact, what specifically will be fair use. With regard to the citation or paraphrasing of the work of others in academic work, however, there are a few things that we can say with some certainty.

With respect to the first factor - the purpose and character of the use - the key issue is whether the prior material has been used in *a transformative way*. Has the material merely been copied verbatim, or has it been changed (i.e. transformed) into something new by the author's addition of new material, expression, information, or meaning? With regard to new scholarship, if the author cited portions of previous works in order to review, comment on, or critique them, such use would probably be transformative and would weigh in favor of a finding of fair use.

Concerning the second factor - the nature of the copyrighted work - a key issue is whether the work being quoted or copied is factual or fiction. Because dissemination of factual information in various forms benefits the public, courts give more leeway to the use of factual materials than they do for the use of fictional materials. This, likewise, would weigh in favor of the fair use finding.

The third factor - the amount and substantiality of the portion of the work used - a rule of thumb is that the less of the original work used, the more likely it is that the use will be deemed fair. However, if even a small portion used is the "heart" of the work, then this factor may weigh against a fair use finding.

The fourth factor - the effect of the use on the potential market for the copyrighted work - refers to whether an author's use of material created by another cuts into new or potential markets for the copied or borrowed material. This is likely a less important factor for science journal papers.

In summary, given their factual nature, scholarly and scientific works are generally ones for which fair use is given wide latitude; however, fair use should never be assumed. Nor should it be thought to allow blanket use or wholesale copying. In short, only necessary portions of the work of others should be quoted or copied, and proper citation and attribution, though it will not protect from copyright infringement claims, is a must. Fortunately, many universities, libraries, and other institutions have established guidelines for fair use, and although these guidelines do not have the weight of law, they can provide examples and assistance. As such, they should be consulted whenever an author or investigator is uncertain about whether use of others' work constitutes fair use, or whether it crosses the line into plagiarism.

Comments by **Suzanne K. Ketler, J.D., Ph.D.,** Roetzel & Andress, Akron, OH., She concentrates her practice in the area of Intellectual Property.







P.I. e-ALERT

The weekly e-zine with ex advice for Principal Investiga every field of research.

Your Email Address:

Subscribe

Thousands receive worldwide!



The foregoing has been legal information only and should not be considered legal advice on a specific issue. For legal advice, the reader should contact legal counsel of his or her choice.

Enjoy this article? Sign Up to receive these free every week

<< Back to list page - Email this Page</p>

Comments

Al If the paraphrasing is not adequately referenced, then it is plagiarism. However, inthe introduction section, if your postdoc thoroughly references his/her sources, it is not plagiarism. In the results and discussion or conclusions sections, your postdoc should not be paraphrasing anyone else. It is up to your postdoc (and you) to interpret the data and draw your own conclusions

Mar 2 2010 6:50AM

Gutenberg

Apparently plaigiarism is so widespread these days, esp among undergraduates, that some companies and websites are doing a brisk business in "anti-plaigiarism" or "plaigiarism-spotting" software. When these undergrads enter postdoc etc some may bring their "bad habits" with them. Ergo, should all grant sponsors run the grant submittals through such "detective" software?

Mar 2 2010 8:16AM

neurogeek

Just run it through the deja vu software to be sure. We do that before submitting every paper.

Mar 2 2010 8:20AM

prost

Perhaps you could clarify--is the concern that the postdoc is using too much of other people's work (therefore not enough original research) or is the concern the postdoc isn't properly citing the work of others, that makes it clear which is her work and what is the work of others?

Mar 2 2010 8:49AM

Astonished

Good Lord! Doesn't Prost know that plagiarism is different from citing too much of other people's work? Hello?

Mar 2 2010 5:12PM

visual ethno

I would like to hear how this applies to visual material: Photographs, drawings, advertisements etc used in critical and cultural studies

Mar 9 2010 6:19AM

Bored reader

As an educator I worry a lot about plagiarism. All students need to be referencing other work and building on it. However I discourage using quotes and relying heavily on what others have said. You need to take the material in context of your own work and give people credit where due. I have seen papers that are full of quotes. There is nothing original or interesting about that paper. I doubt it would be terribly interesting

Mar 9 2010 6:41AM

CopyCat

I would be more concerned that your post-doc fails to understand the published literature and is using 'copy-and-pasted' text to hide a lack of understanding. I would expect any competant postdoc to be able to read say, five or six papers on a topic and come up with a paragonaph which contains little direct quotation in terms of language (notwithstanding that there are few ways to state that 'GeneA gives rise to three splice varients' for example).

Mar 9 2010 6:49AM

Anonymous

Simply citing a source says to the reader "these are not my ideas". It also says "these are my words". Simply omitting words here, using synonyms there is not adequate paraphrasing. To do this properly and to show you really understand what the author has written, write without looking at the original and write as if you are describing this to a friend, albeit a science one. Proper paraphrasing does not include a sentence for everyone written. Obviously technical words will be used in the paraphrase (RT-PCR etc), but the rest need to be your own words. Learning to write is not done by simply cutting and pasting... it's hard work and one struggles but that's how you learn to do it. Citing the paper also suggests you read the article (not the abstract on PubMed). Anyone who ever has attended a journal club where the conclusions of most papers are found questionable should know better than to trust the authors' conclusions in an abstract. We are professionals.. .we need to do the work and show scholarship. It's difficult work but that is what it takes

Mar 9 2010 6:58AM

if it quacks like a duck

Reviewing and citing the work of others (with proper referencing) is proper and respected. The fact that the question is being asked is a flag that this is not the case. As a teacher I saw too many students lifting phrases and sentences either due to a lack of understanding of the science or poor English skills. Part of the problem was that such inappropriate activity was not properly taught as wrong. One student once had the nerve to argue that I had never stated that copying word-for-word another student's report was not allowed. Thus, if you are asking, something is wrong.

Mar 9 2010 7:03AM

P.D.M.

The guestion confuses several issues, and the answer doesn't help untangle them. (1) How much can a journal article include from other sources before it ceases to be fair use? This is a question of intellectual property law. (2) When does including material from sources count as plagiarism? The answer is: When it's not cited properly. So it is independent of whether the amount of material used counts as fair use or not. (3) How much should a journal article regurgitate the literature, as opposed to saying new things? This is a question about standards of scholarship. Other than the last sentence, this actually seems to be the worry of the original letter.

Mar 9 2010 7:09AM

antidisestablishmentarian

CopyCat is right on the money. Someone at postdoc level should not struggle with understanding plagiarism or how to avoid it. I would be deeply worried about that person's level of understanding (unless it is someone with a weak command of English, which may encourage them to paraphrase excessively). More importantly the so-called expert is completely off-topic and clearly has no understanding of scientific publishing. Scientific plagiarism has nothing to do with copyright but is about giving credit where it's due. So 'fair use' isn't a concept that is even relevant here. Excessive paraphrasing and incomplete citations is not a problem because it infringes of the copyright of the journal where the original article was published, but because it falsely suggests the ideas are those of the writer and not the original researcher. Please do us all a favor and abstain from mixing in the murky and unsound logic of copyright law in scientific discourse where it does not belong

Mar 9 2010 7:10AM

prost

Good Lord Astonished! Perhaps you overlooked or otherwise didn't process the statement "I am concerned about the amount of direct quotation", the key word here being AMOUNT. Hence my simple question about clarifying exactly what the question is -- is the questioner suggesting that there is too much referencing the work of others (thereby calling into question the originality of the research) or is the questioner suggesting citations haven't been done properly? Is this a 'survey' type article, which purpose is to summarize a body of work in a particular area, or is the paper's purpose to present a new idea or two? Clearly nearly 100% of survey paper cites the work of others, while the new idea paper should be presenting previous works that support the new idea. And ves, I do know what 'plagiarism' means.

Mar 9 2010 7:16AM

tfarhat@memphis.edu

one or max of 2 paraphrased sentences is more than enough in a manuscript but other authors use it a lot to show off as they have done extensive literature work which should appear in the reference section anyway. Tarek

Mar 9 2010 7:25AM

JWelles103@aol.com When in doubt, I write, "Stolen from......'

Mar 9 2010 7:26AM

MellowFellow

A distinction needs to be made between copyright infringement and plagiarism. Copyright infringement is the use of copyrighted material without permission, and without meeting the requirements of an exemption such as the "fair use". Plagiarism is representing another's work (whether copyrighted or not) as your own. One might take verbatim excerpts or paraphrases of sections of another paper, and depending on the four factors outlined in the Expert Comments, this might be considered fair use (and therefore not copyright infringement). However, if the words or ideas are not clearly attributed to their source, it would be plagiarism, which is unprofessional and unethical. Conversely, one could clearly cite the source (avoiding plagiarism), but if the entirety of a work were reproduced in a way that damaged the market value for the copyright holder, it would probably be considered copyright infringement (not fair use).

Mar 9 2010 7:30AM

ak

the concern from the reader as I understand it is that he/she is unsure if his/her postdoc can write. for the record, paraphrasing is different from plagerism. the former is keeping with conten, but saying it differently. The latter is STEALING! Stealing others work because you have no freakin clue how to write or think. I believe the line is clear.

Mar 9 2010 7:32AM

Arlin

In most academic settings, plagiarism is defined in a code of conduct as copying without attribution. If a student turns in an assignment that reads "In response to this assignment, my classmate Bob writes " and then proceeds to quote Bob's entire work, this deserves an "F" but its not plagiarism. If a professor tries to publish an open-access review that quotes 2 whole pages from a 3-page _Nature_

article, thats not plagiarism either, but its also not fair use (it short-circuits _Nature's_ business model by providing readers free access to pricey content). I'm shocked at the idea of some readers that relying on quotations is an indication of poor scholarship or the lack of original thought. Unless someone can provide an example (anywhere) of a scientific article that quotes too much, I'm going to continue to see the use of quotations as a sign of rigorous scholarship rather than laziness. Quotations allow points to be documented. Would you trust me if I said that Darwin thought all of evolution occurred by infinitesimal changes? No! What if I quote Chapter 6 from the Origin of Species, in which Darwin says that "If it could be demonstrated that any complex organ existed, which could not possibly have been formed by numerous, successive, slight modifications, my theory would absolutely break down."

Mar 9 2010 7:40AM

RKS

Any manuscript that uses strings of text that look even reasonably similar to previously published material just makes one's own manuscript and lab appear weak. There are an infinite number of ways to refer to other people's work and your text should be presented as *your interpretation* of their work - requiring a change in language anyway. I once laughed at a poster abstract presented at a meeting where the authors had swapped out a particular construct name (and substituted their own) and the rest of the text was almost exactly the same as what we'd published in a peer reviewed journal. I recognized it immediately and almost wanted to bring it to their attention but let it go since it would serve no purpose but to embarrass the PI, who probably wasn't aware of it. You do not want others to laugh at your work.

Mar 9 2010 7:44AM

DL

I agree with most of the other comments, this article is a mess because there are three issues being brought up: 1. amount of quotes used, 2. plagiarism, and 3. copyright infringement. The answer is off base and seems to be giving advice of copyright infringement, which is not the question here. As for the postdoc with too much quotation - it shows that the postdoc does not understand what he/she is reading. Being able to summarize and paraphrase several background articles is an important scientific tool and it is not acceptable to merely quote other articles. As a PI, you should let the postdoc know that this is not the proper way to write a scientific paper and demonstrate, from your own papers, how to summarize background information. AND make sure that it is referenced properly to avoid plagiarism.

Mar 9 2010 7:51AM

Emerson

Although your paper undoubtedly makes proper reference to copyright law, it's standard for 'fair use' is too low for academia per se. When one writes an article for publication, the implication is that the data and conceptual interpretation is one's own. When specific language is lifted from other sources without citation, that language reflects someone else's conceptulization, and is therefore not one's own. Period. So whether or not it would violate someone else's rights may be arguable, but the text could not be construed as one's own thoughts, and is therefore illicit.

Mar 9 2010 7:56AM

anon

Cite, cite, cite. As long as you are giving credit to the original work and not claiming it as your own, there is no problem of plagiarism. Overuse of paraphrasing and quotations will, of course, reduce the quality of the article and may affect your reputation. But at least, it is not illegal to write a bad article or one in which there are not many new ideas.

Mar 9 2010 8:09AM

FRANK

A postdoc isn't a student!

Mar 9 2010 8:14AM

Sheppard

Various texts on academic writing speak to this issue. Here are three examples, all in quotes (I'm only reporting here): Hacker (2000, Rules for Writers): "... failing to put summaries and paraphrases in your own words ... [is] ... considered plagiarism." "... you must restate the source's meaning using your own language." "... if too much ... language is borrowed from the source, ... it is plagiarism, even though the source is cited." "You are guilty of ... plagiarism if you half-copy [an] author's sentences, [for example,] by plugging your synonyms into the author's sentence structure." Gilmore (2009, Plagiarism): "... plagiarism includes copying sentences ... and re-placing words with close synonyms." Maimon et al. (multiple editions, Writer's Resource): "... changing a word here and there while keeping a source's sentence structure or phrasing constitutes plagiarism even if you credit the source..."

Mar 9 2010 8:18AM

Robin

The issue seems misstated to me. Extensive quotation and paraphrasing is not a problem per se. What do you think a review paper is? The issue is that one needs to make a contribution and not waste readers' time. If one merely quotes without adding value, lack of original contribution is what makes it a poor paper, not the quoting. If the paper is sprinkled with gratuitous quotes that don't forward its important points, then it's a poor paper because it rambles and needs to be tightened (focused). It's irrelevant whether that rambling takes the form of quotations or of reminiscences from one's childhood.

Mar 9 2010 8:21AM

Prof X

MellowFellow and Arlin have both zeroed in correctly on the issue. The bottom line is that including correctly attributed material verbatim in any amount is not plagiarism, but copyright law sets a fuzzy limit ("fair use") on how much is permissible to include before needing permission from the copyright owner (even if properly cited). So a verbatim sentence or two is no problemo if cited properly, but cutting and pasting a big diagram or figure usually crosses the fair use line even though it is not plagiarism if cited. The irony is that I cannot even cut and paste schemes that I have drawn myself and published (clearly not plagiarism because I am "quoting" myself) because my copyright was transferred to the publisher as a condition of acceptance. The postdoc in the original question seems to have cited the quoted material properly, but question was really one of quarity, i.e, how many quoted passages is too many? In science papers, at least, direct quotes sometimes are very useful to document a specific claim (Arlin's example is excellent), but more than a few is almost never the most concise way of making a point, so even if it clearly is not plagiarism, and probably not copyright infringement, it is just plain bad writing to construct and introduction or discussion section that way.

Mar 9 2010 8:22AM

JimE

Arlin is absolutely correct. It is how the direct quotations are being used to discuss or critique a point that is important, not how much was quoted. Those who have contended that direct quotations (properly referenced) are a sign of bad writing, inability to understand the literature or simple laziness might be guilty of all three.

Mar 9 2010 8:24AM

CAW

P.D.M. and antidisestablishmentarian have it about right - for the original question and the useless expert article.

Mar 9 2010 8:28AM

Deja Vu

I agree with previous comments regarding the distinction between copyright infringement and plagiarism. As far as I know, there is no U. S. law against plagiarism per se (or other kinds of academic cheating), but that does not mean that it is not grossly unethical and grounds for failing a class (if perpetrated by a student) or losing one's job (if perpetrated by a professional "scholar"). I would also argue that computer programs designed to detect plagiarism are a one-way test. That is, they can detect nonrandom similarity between documents, but their failure to do so due to paraphrasing, etc. does not mean that a document is not a product of plagiarism.

Mar 9 2010 8:34AM

Anonymous

Plagiarism and fair use are orthogonal concepts. Suzanne Ketler's analysis is quite beside the point, I think. "Fair Use" is a concept in copyright law, not in academic integrity. The only cases I can think of that might rise to a violation of copyright law are those where figures have been lifted from other sources and reused without permission. The threshold for plagiarism is far lower than that of the doctrine of fair use. In a scholarly paper if the sources are properly acknowledged for every quote, direct or paraphrased, it is never plagiarism. PERIOD. NEVER. It is altogether another story to ask whether the literature review section of the paper is scholarly enough. That is, an overview of literature that merely quotes previous articles with providing a clear context that is relevant to some aspect of what is presumably new work, then the problem is not "fair use" or even plagiarism. The problem is lack of scholarship.

Mar 9 2010 8:47AM

Dr.Dave

I include the following in term paper assignments and extend it to other writings of students and associates. In the text of your paper, direct quotations should be used very sparingly if at all. They should be reserved for those circumstances when paraphrasing would destroy the special flavor of what an author was presenting or when you are using a quote for a special effect. There are few occasions when quoted passages are necessary or desirable. Instead use your own words to draw together information from your various sources. Credit your sources as appropriate for the information content, but use your own words.

Mar 9 2010 8:49AM

<u>dhilleub</u>

There is a lot of gray area here, but the following can be asserted without equivocation: if an entire sentence is copied without revision, it is plagiarism, regardless of whether it is properly cited (unless placed in quotations). Minor tinkering with the words in the sentence doesn't fix the problem either. Sometimes even a uniquely constructed phrase, if used without modification or attribution (e.g., "termed [phrase here] by [whoever]") should be considered plagiarism. Generally speaking, if you have any doubt about a sentence or phrase, you should probably rewrite it in your own words.

Mar 9 2010 8:49AM

Budding Einstein

A pox on all you green eyeshade types who seem to get a thrill of schadenfraude as we postdocs struggle to write our first papers. Beware: Even the iconic NY Times has a steady flow of firings for plagiarism.

Mar 9 2010 9:31AM

DrFred

Expert Ketler is getting a "bum rap" here. She wrote "[i]n summary, given their factual nature, scholarly and scientific works are generally ones for which fair use is given wide latitude; however, fair

use should never be assumed. Nor should it be thought to allow blanket use or wholesale copying. In short, only necessary portions of the work of others should be quoted or copied, and proper citation and attribution, though it will not protect from copyright infringement claims, is a must." This is good advice with respect to copyright infringement, and almost all scientific journals and books are copyrighted nowadays. It is true that plagiarism differs from copyright can still comprise plagiarism. But following the cautionary statements of Ketler quoted above can go a long way in avoiding plagiarism also.

Mar 9 2010 10:25AM

burkefranklin

What if I were to copy this article in its entirety to my website provided I include an active link to you/your website? Isn't that why most people post articles, blogs and white papers? Please, copy a chapter from my book and post it onto your website. (Notice I offered just a chapter, but it's as much as appears here.) And include a link to my web page -- become an affiliate and I'll even pay you 25%! I consider that fair use of my work and good for everyone involved. Isn't that also why you wrote and posted this article? (You need to add a link to yourself or your firm's website! Can I copy it to my website and add a link to you?)

Mar 9 2010 10:42AM

GeorgeF

I too worry about papers produced within my lab, particularly from non-native English speakers - but my memory is too poor to spot these offenses - even if taken from my own work! Can anyone recommend plagiarism detection software?

Mar 9 2010 10:54AM

Scholar

It is not just the "expert" who is very confused here; the person who asked the question is also very confused. "Fair use" is a concept for copyright law and not anything like an antonym for plagiarism. At issue here is academic integrity and standards for scholarship. A very nice guide has been produced at MIT: http://web.mit.edu/academicintegrity/ It does a surprisingly good job of teaching the distinctions between quoting and paraphrasing, etc.

Mar 9 2010 10:55AM

Martial

For original research papers, if the experiments did not yield sufficiently novel information, results are unpublishable. If the experiments yielded novel information, irrelevant is the number of words of others, so long as they are referenced. Editors usually trim unneeded fat in such cases. For review articles or a meta-analyses, plagiarism is what the attorney defined as being an infringement of the fair use doctrine. Imagine someone using words from one of your articles. If the authors of an original research paper, especially an important one, thought highly enough of your work to quote it at length, you'd likely be deeply flattered. If a review paper quoted five paragraphs from your discussion, with or without attribution, you would likely be uset.

Mar 9 2010 12:22PM

<u>deh</u>

I write many papers and have a lot of material online for others to (hopefully) use and learn from. I am delighted when quoted, whether in a review, a text or a research paper or anything else, just so long as the quote is correctly referenced. As a basic research scientist, my products are ideas and data. If no one quotes and references me, it would mean my products were not of value.

Mar 9 2010 3:16PM

hnnigg

If your graduate student is using language from another article, why worry abuot plargarism? The graduate student is not an original thinker and that means no creativity. Make it a terminal Master's degree. What is described is plagarism, plain and simple, and the author of the article spends too much text dancing around the issue.

Mar 9 2010 4:26PM

wea

All words and sentences are made of the same 26 letters! Sentences are just a bearer of views and points. The key issue is whether viewpoints and thoughts is plagiarized. If you do not look from the whole thoughts of a paper, just based on some sentences and phrases in the paper, you might make a wrong judement.

Mar 9 2010 7:25PM

<u>HG</u>

As an editor for a journal, I have some comments. First, we catch a lot of plagiarism. It is easy these days. Second, there are two levels of plagiarism. One level is when it is sufficiently long and blatant that we drop the hammer and bring sanctions against an author, including most commonly banning them from the journal. The other level is when I or a reviewer recognizes plagiarism is not blatant enough to bring sanctions. At that point, I find an excuse to reject the paper, and I remember the names of the authors. The real world is not like a court of law; plagiarism and other unethical behavior can sink people's careers without them ever being accused. If you call yourself the author of a paper, you are saying that you wrote the words. If you did not, it is a lie. Yes, you should read all of the related literature for your area, but when you go to write, put it all away and write the words yourself.

Mar 9 2010 8:10PM

Miguel

In my view, this issue has been framed incorrectly and should not be regarded as a question of copyright violation vs. plagiarism, but as a question of whether the student's writing has crossed the line between what might be considered acceptable vs. unacceptable scientific scholarship (i.e., plagiarism). The following resource, which I have prepared for, and is hosted by, the US Office of Research Integrity addresses these and related matters of ethical, scientific writing: http://ori.dhhs.gov /education/products/plagiarism/.

Mar 10 2010 4:13AM

DrFred

Interestingly, the very informative article by Miguel Roig (http://ori.dhhs.gov/education/products /plagiarism/) states that "[i]n some cases the misappropriation of an idea can be a subtle process. Consider the famous case of Albert Schatz who, as a graduate student working under Selman Waksman at Rutgers, discovered the antibiotic streptomycin. Even though the first publications describing his discovery identified Schatz as primary author (Martin, 1997), it was Wakman who, over a period of time, began to take sole credit for the discovery ultimately earning him the Nobel prize in 1952 (see, for example, Shatz, 1993; Mistiaen, 2002 for a fuller description of this case)." Yet in 2005, long after Waksman's death, Daniel still described this controversy as "what can only be thought of as a can of very messy and still unsettled worms".

Share your opinion
Username:
Comment*:
* = required
DIS
Please input the code above. This is to prevent spam.

Can't read the image? Load New Image

Post Comment

Contact U	<u>s U</u>
-----------	------------

Insubscribe Privacy Policy

Principal Investigators Association 3565 10th St N, Suite B - Naples, FL 34103 USA 1 (800) 303-0129 | (239) 331-4333 | Fax: (239) 676- 0146 Email: info@PrincipalInvestigators.org

© 2009 Copyright All Rights Reserved Principal Investigators Association, Inc.