

Piggyback on a Nobel Prize or Show Its True Spirit

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HIGHLIGHT

Winning a Nobel Prize is like to obtain a master key for opening all communication channels. Once tightly shut doors of the mainstream publishing houses suddenly become wide open to welcome anything related or even unrelated to the now Nobel-winning research. A “top” journal which did not publish any thing on *Helicobacter* for the last two decades now just published a lengthy essay to piggyback on the Nobel Prize but mainly to propel its own agenda. However, public should know that this trend-riding behavior in scientific publishing is not only distasteful but also very harmful to the scientific culture.

ABSTRACT

Great scientific discoveries offering deep insight were often viewed as “radical” or even “non-sense” at the beginning and thus rejected by peers and prohibited from publishing at least in the “top” journals reflecting the mainstream views. Ironically, once these discoveries were recognized as great discoveries later many peers will claim them as their own common sense and heavily spin on them. Even “top” journals which cared little about these discoveries now will response very quickly in catching up the trend and piggybacking more for an easy ride of enhancing their impact. The past strong resistance and long ignorance of the discovery of a bacterial infection cause for the peptic ulcer disease and the now many piggybacking behaviors on a Nobel Prize illustrate how strange the scientific world is now.

KEY WORDS

Discovery, Peer rejection, Nobel Prize, Piggyback, Top journal, *Helicobacter*, Barry Marshall, Robin Warren

Opening the next to the last issue of *Cell* in 2005 I was amazed to see it actually published an essay on bacterium *Helicobacter*¹. I was amazed because I just performed some analyses on the “top” journals’ coverage on the discovery of this bacterium and found that *Cell* was the only “top” journal that had never published any thing on this bacterium in the last 23 years since its discovery² (I verified this finding again on Jan. 4th, 2006 by searching PubMed specifically for “*Helicobacter*” in the title field and “Cell” in the journal field). Nevertheless, I am glad to see that *Cell* is taking a lead in paying a due respect for this great discovery while the other “top” journals were still only amazed that a Nobel Prize could be won by such a “simple” discovery. For examples, *Nature*³ and *Science*⁴ so far have just “objectively” reported the news of this award. However, the news in *Science* mistakenly identified

the 1984 *Lancet* paper as the first paper for the discovery. In fact, many people have got such wrong information because the original 1983 *Lancet* publication on “unidentified curved bacilli”(the *Helicobacter*), composed of two letters separately from Warren and Marshall, has been treated as an AUTHORLESS publication in PubMed⁵. A letter revealing this important shortcoming of PubMed was declined to be published by *Nature*⁵.

However, I wish to point out a serious misrepresentation in this *Cell* essay article. The summary of this essay stated that “the Nobel Prize ... for discovery of the bacterium *Helicobacter pylori* and its role in peptic ulcer disease and gastric cancer”.¹ This characterization of the Nobel Prize is only half true because the award is only for the discovery

of “the bacterium *Helicobacter pylori* and its role in gastritis and peptic ulcer disease”. More specifically it is for the “discovery that inflammation in the stomach (gastritis) as well as ulceration of the stomach or duodenum (peptic ulcer disease) is the result of an infection of the stomach caused by the bacterium *Helicobacter pylori*” (see the official press release by the Nobel Assembly at <http://nobelprize.org/medicine/laureates/2005/press.html>).

It is true that Marshall mentioned the possibility that “unidentified curved bacilli” may have a part to play in gastric cancer in the pioneering 1983 *Lancet* paper⁶. It is also true that the press release of Nobel Assembly also mentioned the “malignancies associated with *Helicobacter pylori* infection” when introducing the discovery of the *Helicobacter pylori*. However, the award does not cover their work in this area as clearly stated in the detailed summary of the Nobel Assembly. In fact, works on the association of *Helicobacter* infection and cancers were later developments that have been done largely by others. My previous search for publications by B. J. Marshall and Robin Warren found only two papers addressing the potential link between the *Helicobacter/Campylobacter pylori* infection and the cancers, one in 1989⁷ and one in 2005⁸. New searches (performed on Jan. 4, 2006) in the PubMed for “*Helicobacter*” or “*Campylobacter*” (the old name used) and “cancer” or “tumor” both in the title field yielded a total of 611 unique records. However, none of these records are publications of either Barry J. Marshall or Robin Warren. Thus, including works of *Helicobacter*-associated cancers as an important part of the credit to Marshall and Warren for their Nobel Prize is untrue to them and unfair to others. I guess both Marshall and Warren will not accept such “piggyback” that does not belong to them. As a matter of fact, in their Nobel lectures, Marshall and Warren both just mentioned the *Helicobacter*-cancer association with quick passing reference (one slide in each of their talk), not treating it as any significant work of their own.

That fact being straightened out, there is no doubt that many later ramifications would not occur if the foundation of the causal relation between the bacterial infection and the peptic ulcer disease was not set up by Marshall and Warren through their brave and persistent pursuit for the truth while enduring the humiliation of ridicules, the hardship of lacking support, and even the suffering of self-testing the disease. We can celebrate this great “low-tech” discovery for its simplicity and easiness (now realized) without piggybacking any additional more “important” and “glory” achievements. In fact, piggybacking any additional stuff on this discovery

will just dilute the content of the pioneering work or even degrade the value of the original discovery.

The real power of the Nobel Prizes, as compared with the other prizes or the other ways of measuring the scientific successes such as the citation numbers and the impact factors⁹⁻¹¹, is not their instant values or apparent significance but their originality and enduring appealing¹². Many greatest discoveries were often perceived as too simple to believe (later) but were usually treated as “unbelievable” “non-sense” earlier. These “far-fetched” (perceived then) discoveries were often greeted with ridicules and were avoid for citations^{5,13}. It is ironical that many great scientists (as portrayed later) were actually condemned as “craze” people, as has been vividly described by Linus Pauling - the world's only two-time unshared Nobel Prize winner- that “A man with a new idea is a crank until he succeeds”. This early suppression on new ideas and despise on pioneers in fact has made some Nobel laureates as poor performers in citation games¹⁴.

The awarding of this year's Nobel Prize to a “low-tech”, “cheap” and “easy” discovery¹⁰, against the strong “citation” appeal for other “high-tech”, “expensive” and “difficult” achievements⁹, may send us a clear signal that truth and the originality of finding the truth may be the most important thing to consider for a Nobel Prize¹². Truth can be found by hard work at high cost using sophisticated equipments. But it can also be found at low cost with naked eye by simply being truthful to what you see. Many people have believed that “simple”, “obvious” and “easy” truth may have been all found and only large-budget big projects can find the remaining “difficult” and “non-obvious” truth. However, I must say this perception is wrong.

Einstein's discovery was made by pure thinking – a lonely thinking without peer influence (luckily he had no “peers” to correct his “bizarre” thought and he had published all his most important discoveries before he actually became a professional scientist). Marshall and Warren's discovery was made with a truthful reporting of what they actually saw instead of what they were taught. History has repeatedly shown that great discoveries are often made in such a way as described by Linus Pauling: “do something which you believe in completely but which everyone else thinks is foolishness”. If you pay too much attention to what others will think of you and thus are afraid of faithfully reporting what you see, then you may never find truth or get the credit for finding that truth. Thus, to become a great

scientist, one first should be a truthful scientist. This truthfulness may be the most valuable spirit for all scientists, especially in today's scientific world where establishments seem to award those dishonest and unethical scientists better and quicker than the honest and ethical scientists. However, the award of Nobel Prizes for the Einstein-type scientists (then) and the Marshall-type scientists (now) should serve as a strong encouragement for those truthful scientists still working in the dark and fighting against the prevailing dogmas. Let's see if future will award such scientists, again.

References

1. Megraud F. A humble bacterium sweeps this year's Nobel Prize. *Cell* 2005;123(6):975-6.
2. Liu SV. Discovery, publication, citation, impact, and Nobel Prize - An unauthorized track record of Barry Marshall. *Logi. Biol.* 2005;5(4):322-334.
3. Abbott A. Gut feeling secures medical Nobel for Australian doctors. *Nature* 2005;437:801.
4. Nobel Prize: Physiology or medicine: Triumph of the ulcer-bug theory. *Science* 2005;310:34.
5. Liu SV. A Nobel Prize-winning work is hard to find in publication databases. *Logi. Biol.* 2005;5(4):306-307.
6. Warren JR, Marshall B. Unidentified curved bacilli on gastric epithelium in active chronic gastritis. *Lancet* 1983;1:1273-75.
7. Caldwell SH, Marshall BJ. Possible role of *Campylobacter pylori* in idiopathic hyperammonemia. *Am J Med* 1989;87(2):249-50.
8. Marshall BJ, Windsor HM. The relation of *Helicobacter pylori* to gastric adenocarcinoma and lymphoma: pathophysiology, epidemiology, screening, clinical presentation, treatment, and prevention. *Med Clin North Am* 2005;89(2):313-44, viii.
9. Liu SV. Predicting Nobel Prizes: Citation laureates' low chance to win. *Logi. Biol.* 2005;5(4):294-296.
10. Liu SV. Winning the Nobel Prize: Bug beats human. *Logi. Biol.* 2005;5(4):287-288.
11. Liu SV. Why couldn't mapping human genome win a Nobel Prize? *Logi. Biol.* 2005;5(4):276-278.
12. Liu SV. 105 years of Nobel Prizes in physiology/medicine: Basic facts and key statistics. *Logi. Biol.* 2005;5(4):279-286.
13. Liu SV. Nobel Prize-winning original publications' under performance in making citation glory. *Logi. Biol.* 2005;5(4):297-305.
14. Liu SV. Real discrepancy between H-index and Nobel Prize-winning. *Logi. Biol.* 2005;5(4):320-321.

Note added on 20060201

1. This manuscript was submitted first to *Cell* on January 9, 2006 and then to *Nature* on January 12, 2006. However both journals rejected this manuscript.

2. A list of publications on the 2005 Nobel Prize for medicine in scientific journals.

Note added on 20060203

This extended manuscript contains the original content as was submitted to *Cell* and *Nature* and Note added on 20060201 plus the added abstract and key words as required by *The Lancet* standard.

* This manuscript contains the exact content as it was submitted to *The Lancet* on 20060201 except for the note added on 20060203 to indicate the final rejection by *The Lancet* on 20060203.

Table 1. Coverage of the 2005 Nobel Prize for medicine by scientific journals*

Title (as published)	Reference (Journal Vol:Page)	Date** (yyyymmdd)
Winning the Nobel Prize: Bug Beats Human	<i>Logical Biology</i> 5:287	20051003
Gut feeling secures medical Nobel for Australian doctors	<i>Nature</i> 437:801	20051006
Physiology or medicine. Triumph of the ulcer-bug theory	<i>Science</i> 310:34	20051007
Nobel Prize winners Robin Warren and Barry Marshall	<i>Lancet</i> 366:1429	20051022
23 years of the discovery of <i>Helicobacter pylori</i> : is the debate over?	<i>Ann Clin Microbiol Antimicrob</i> 4:17	20051031
[The 2005 Nobel Prize in Medicine: after stress, bacterial infection]	<i>Bull Cancer</i> 92:929	200511xx
[Nobel prize in 2005 for H. Pylori and for gastroenterology]	<i>Z Gastroenterol</i> 43:1211	200511xx
[Nobel Prize for <i>Helicobacter pylori</i>]	<i>Tidsskr Nor Laegeforen</i> 125:3245	20051201
Clinician-discoverers--Marshall, Warren, and H. pylori	<i>N Engl J Med</i> 353:2421	20051208
[From a controversial minor finding to the Nobel Prize. The discovery of <i>Helicobacter pylori</i> --an unlikely tale of success]	<i>Lakartidningen</i> 102:3779	20051211
A humble bacterium sweeps this year's Nobel Prize	<i>Cell</i> 123:975	20051216
[The Nobel Prize in Physiology or Medicine for 2005 for the discovery of the stomach bacterium <i>Helicobacter pylori</i>]	<i>Ned Tijdschr Geneesk</i> 149:2955	20051231
Spotlight on gastroenterology - the Nobel Prize Laureates in Physiology or Medicine 2005: John Robin Warren and Barry James Marshall	<i>Scand J Gastroenterol</i> 40:1383	200512xx
The Nobel prize in physiology or medicine 2005	<i>Scand J Immunol</i> 62:497	200512xx
From nerves and hormones to bacteria in the stomach; Nobel prize for achievements in gastrology during last century	<i>J Physiol Pharmacol</i> 56:507	200512xx
The Nobel Prize in 2005 for the discovery of <i>Helicobacter pylori</i> : Implications for child health	<i>Acta Paediatr</i> 95:3	200601xx

* Based on my personal knowledge which includes the findings from a search in PubMed performed on February 1, 2006.

** xx indicate unknown or unspecified date.