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Okayama University research: Improving the diagnosis of pancreatic cancer

(Okayama, 06 June) **In a recent study published in the *Journal of Gastroenterology* researchers at Okayama University report a method to identify specific cases of pancreatic cancer.**

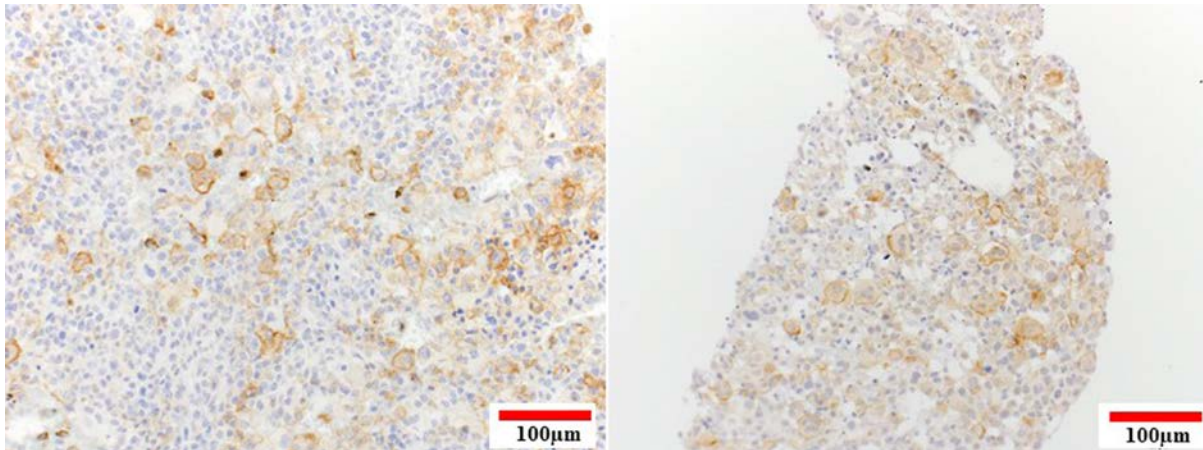
Pancreatic cancer is one of the most common causes of mortality worldwide. A new class of drugs which combat the condition, immune-checkpoint inhibitors, has recently emerged. Immune-checkpoint inhibitors, such as atezolizumab or avelumab, bind to a protein called as PD-L1 found on the pancreatic cancer cells of certain patients. However, correctly identifying patients with PD-L1 remains a challenge for oncologists. Such a diagnosis can help clinicians identify PD-L1-positive patients so that checkpoint inhibitor therapy can be initiated early-on. Researchers at Okayama University recently investigated a technique to diagnose this subgroup of patients.

A common, minimally-invasive method to diagnose cancer is fine needle aspiration (FNA). FNA is an advanced technique that involves sliding a thin needle through the skin to suck out suspected cancerous tissue, which is subsequently tested in the laboratory for cancer markers. Professor Hiroyuki Okada and Assistant Professor Kazuyuki Matsumoto's research team sought out to gauge whether FNA is advanced enough to help detect the presence of PD-L1. Cancer patients often undergo surgery to have their cancerous mass removed. The study was conducted on such patients who had also previously undergone FNA for diagnosis. Analyzing surgically-removed cancerous tissues often gives the most accurate depiction of their characteristics. Therefore, the cancerous tissue resected during surgery and during FNA were analyzed under a microscope for the presence or absence of PD-L1, and both results were compared. If a patient's tissue contained > 5% or >10% of PD-L1, that patient was considered PD-L1 positive. As the results, approximately half of the patients with PD-L1 expression positive and almost all of patients with PD-L1 expression negative could be diagnosed on FNA specimens.

This study reports the usefulness of identifying PD-L1 at the time of diagnosis of pancreatic cancer and shows that FNA can prove to be a useful method in facilitating this diagnosis. "These results have potential utility in the field of precision medicine for patients with pancreatic cancer", conclude the researchers. Such an accurate diagnosis, if performed early on, can help oncologists provide customized treatment to patients and greatly improve their chances of survival.

## Background

The PD-1–PD-L1 axis: PD-1 is a protein found on T-cells, or the safe-keeping cells, in the human body. Normal cells in the body express a protein called as PD-L1, which binds to PD-1 and deactivates the T-cells. Several types of cancer cells have also devised a mechanism to express PD-L1, thereby bypassing the surveillance of T-cells and safeguarding themselves from attack. Drugs such as checkpoint inhibitors can deactivate the PD-L1 protein so that the cancer cells are not safe anymore.



## Caption

A comparison of PD-L1 (brown coloring) observed in the surgically resected (left) and fine-needle aspirated (right) pancreatic cancer samples.

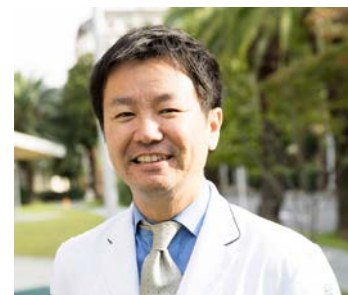
## Reference

Kazuyuki Matsumoto, Toshiaki Ohara, Masayoshi Fujisawa, Akinobu Takaki, Masahiro Takahara, Noriyuki Tanaka, Hironari Kato, Shigeru Horiguchi, Ryuichi Yoshida, Yuzo Umeda, Soichiro Fushimi, Takahito Yagi, Akihiro Matsukawa, Hiroyuki Okada. The relationship between the PD-L1 expression of surgically resected and fine-needle aspiration specimens for patients with pancreatic cancer. *Journal of Gastroenterology*, 2019 Apr 29.

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<https://www.youtube.com/watch?v=iDL1coqPRYI>

Okayama University Image Movie (YouTube):

<https://www.youtube.com/watch?v=KU3hOIXS5kk>



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Okayama University is one of the largest comprehensive universities in Japan with roots going back to the Medical Training Place sponsored by the Lord of Okayama and established in 1870. Now with 1,300 faculty and 13,000 students, the University offers courses in specialties ranging from medicine and pharmacy to humanities and physical sciences.

Okayama University is located in the heart of Japan approximately 3 hours west of Tokyo by Shinkansen.

Website: [http://www.okayama-u.ac.jp/index\\_e.html](http://www.okayama-u.ac.jp/index_e.html)



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