

New wave of immunotherapy against lung cancer rolls in to clinic

It is my great pleasure to serve as a Guest Editor of this issue of *Translational Lung Cancer Research*. Here we would like to focus on immunotherapy because new approaches with immunotherapy are rolling in to clinic in the fields of thoracic malignancies such as lung cancer and malignant mesothelioma.

Immunotherapy has been expected for long time to become a fourth standard therapy combined with/without chemotherapy, radiotherapy and surgery. Recently several antibodies such as rituximab, trastuzumab, bevacizumab, etc. are used for treatment of patients with various cancers. In lung cancer, bevacizumab showed the prolonged progression free survival and overall survival of patients with non-squamous non-small cell lung cancer. On the other hand, cellular immunotherapy has not been proven to have significant benefit for cancer patients in large clinical trials. However, recent randomized clinical trials with antibodies for CTLA-4, PD-1 or PD-L1 demonstrated the efficacy to shrink tumor mass of lung cancer for longer period, which was associated with the infiltration of cytotoxic T lymphocytes (CTLs). These data suggest the critical role of regulatory mechanisms existing in tumor microenvironment to induce sufficient immune responses against tumor in clinic. During these current of the times, strategies with tumor vaccine as well as adoptive transfer of T cells harboring modified T cell receptor would be hopeful approaches again as a combined therapy. Besides CTLs, several effector cells such as $\gamma\delta$ T cells and NKT cells might contribute to future immunotherapy.

This issue includes the reviews regarding all useful and hopeful immunotherapies against thoracic malignancies presented above, and therefore could be helpful for the readers to understand overall immune responses against lung cancer as well as current ongoing immunotherapies. I really appreciate for all authors contributed to this issue and the Editor-in-Chief for giving me this opportunity. We hope that new wave of immunotherapy ultimately contribute to the health and life of patients with lung cancer or malignant mesothelioma in the near future.

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