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IOTECH IMMUNO-ONCOLOGY TECHNOLOGY

EDITORIAL

IOTECH in times of COVID-19

During the first 6 months of 2020 the life of many of us changed completely. Our planet was held hostage by a novel corona virus, forcing us to take measures that impacted heavily on our freedom to travel, our daily work, our social lives, and perhaps our family and friends. With incredible speed, face-to-face meetings were enforced to change to virtual meetings to discuss our scientific work or educate our colleagues. In many of our institutions, the laboratory work was marginalized or labs were even closed, halting scientific output. Also many clinical trials were put on hold, both to minimize the risk of contracting the SARS-CoV-2 virus for our cancer patients, and to protect personnel at hospitals, CRO's and pharma. At the same time, researchers and clinicians from all over the world found ways to measure the effect of the virus or the COVID-19 on patients with cancer and health care workers. In a huge wave of publications on COVID-19 we were taught who are at risk, whether the disease can be ameliorated, how to stop the spreading of the virus, whether protective antibodies are generated and more. Academic institutions and companies are working around the clock to build a protective SARS-CoV-2 vaccine, which hopefully will be available early next year. Will our lives ever go back to before COVID-19 pandemic? I do not know.

What happened to IOTECH in all this turmoil? We managed to keep on publishing manuscript on new immune-oncological technologies and developments. In this issue, Gopalakrishnan and co-workers explain the role of the microbiome on the ability of patients to respond to immunotherapies.[1] The microbiome, the genetic content of all commensal microbiota humans live with, most often in harmony, is essential to survive as it is required for synthesis of enzymes, vitamins and substances the body cannot not produce. How exactly the microbiome shapes our immune system is still far from understood, but we do know that we can influence the microbiota by changing our diet, use of antibiotics and even by fecal microbiota transplantation. Understanding how we could utilize this knowledge to increase patients' response to immunotherapy of cancer, may shift outcome to much more durable benefit than is currently achieved. A very exciting thought.

Another important, although far from ideal biomarker for response to IO treatment, is PD-L1 expression, as measured by immunohistochemistry of tumor biopsies.[2] Patients with tumors having high PD-L1 expression in general have a better response rate or survival to immunotherapies compared with those with low or absent expression. PD-L1 expression is one of the very few approved selective IO biomarkers. However, staining and measuring PD-L1 positivity is not trivial, as it is dependent on the antibody and test used, the staining platform, the experience of the pathologist, the tissue quality and so on. In addition, PD-L1 expression may be heterogenous, cytoplasmic, on tumor cells, immune cells, or both. Cut-offs for positivity differ between cancer types and IO treatment, creating an increasing complexity, difficult to implement in routine use. Inge and Dennis worked on finding computer algorithms, machine learning programs, also referred to as artificial intelligence, to support pathologists in calling PD-L1 expression. This could not only speed up their work, but also help in standardization of PD-L1 testing.

Enjoy the reading and stay safe in these uncertain times!

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REFERENCES

1. Gopalakrishnan V, Weiner B, Ford CB. Intervention strategies for microbial therapeutics in cancer immunotherapy. *Immuno-Oncology Technology*. 2020;6:9—17.
2. Inge LJ, Dennis E. Development and applications of computer image analysis algorithms for scoring of PD-L1 immunohistochemistry. *Immuno-Oncology Technology*. 2020;6:2—8.