Seminar series TRR 305 – Striking a moving target: From mechanisms of metastatic organ colonisation to novel systemic therapies

Wednesday, 15 February 2023
15.00 h

hybrid (on site in Regensburg)
Großer Hörsaal ZMK, ZM 6.106
University Hospital Regensburg

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Institute of Pathology

Colorectal cancer: clonal dynamics of malignant progression and treatment resistance evolution

The evolution from non-dysplastic colorectal mucosa to colorectal cancer is characterized by the accumulation of genomic alterations. Colitis patients have an increased risk for development of colorectal cancer, however, prediction which colitis patient will develop colorectal cancer is difficult. We hypothesize that screening for somatic genome alterations could help with the identification of colitis patients with a high risk of malignant progression. To investigate this question, we apply a combination of whole exome sequencing and single cell genomics to trace the onset and clonal spread of genetic alterations in the inflamed bowel. Another clinical challenge is the heterogeneous response of rectal cancer patients to neoadjuvant chemoradiation. Using a similar methodological approach as mentioned above, we aim to delineate the genomic trajectories underlying the emergence of treatment resistance and metastatic disease in rectal cancer to improve therapeutic strategies and patient outcome.

Hirsch, D., Wangsa, D., Zhu, Y. J., Hu, Y., Edelman, D. C., Meltzer, P. S., Heselmeyer-Haddad, K., Ott, C., Kienle, P., Galata, C., Horisberger, K., Ried, T., & Gaiser, T. (2018). Dynamics of Genome Alterations in Crohn's Disease-Associated Colorectal Carcinogenesis. Clinical cancer research - an official journal of the American Association for Cancer Research, 24(20), 4997–5011. https://doi.org/10.1158/1078-0432.CCR-18-0630#

Fiedler, D., Heselmeyer-Haddad, K., Hirsch, D., Hernandez, L. S., Torres, I., Wangsa, D., Hu, Y., Zapata, L., Rueschoff, J., Belle, S., Ried, T., & Gaiser, T. (2019). Single-cell genetic analysis of clonal dynamics in colorectal adenomas indicates CDX2 gain as a predictor of recurrence. International journal of cancer, 144(7), 1561–1573. https://doi.org/10.1002/ijc.31869

Zoom-Meeting-Link

https://uni-regensburg.zoom.us/j/64815365122?pwd=d3ZVbWRzZWMxZ0RlRXYwWDFnSjZQQT09
Meeting-ID: 648 1536 5122
Kenncode: 155790