

Region-based amplification

Region-based [amplification](#) is a type of [polymerase chain reaction](#) (PCR) that allows for selective amplification of a specific genomic region. This [technique](#) uses primers that anneal to specific regions of the target [DNA sequence](#), allowing for the amplification of only the desired region rather than the entire [genome](#). Region-based amplification can be used to study specific [genes](#) or regions of interest, and it has applications in various fields, including medical [research](#).

Ye et al. performed five region-based amplification and bacterial 16 S rRNA sequencing to identify the [microbiome](#) of [pituitary neuroendocrine tumor](#) (PitNET) tissues across four clinical [phenotypes](#). Multiple filter procedures were performed to inhibit the risk of [contamination](#) with bacteria and bacterial DNA. Histological analysis was also conducted to validate the localization of [bacteria](#) in the intra-tumoral region.

They identified common and diverse bacterial types across the four clinical phenotypes of PitNET. They also predicted the potential functions of these bacteria in tumor phenotypes and found that these functions were reported in certain previous mechanistic studies. The data indicate that the [pituitary neuroendocrine tumor pathogenesis](#) and development of tumors may correlate with the behavior of intra-tumoral bacteria. Histological results, including lipopolysaccharide (LPS) staining and fluorescence in situ hybridization (FISH) for bacterial 16 S rRNA clearly demonstrated the localization of bacteria in the intra-tumoral region. Staining for Iba-1 suggested that the proportion of microglia was more abundant in FISH-positive regions than in FISH-negative regions. Furthermore, in FISH-positive regions, the microglia exhibited a longitudinally branched morphology that was different from the compact morphology observed in FISH-negative regions.

They provide evidence for the existence of intra-tumoral bacteria in PitNET ¹⁾

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Ye L, Wu BS, Xu ZA, Ji XF, Guan L, Li PP, Li Y, Cheng HW, Xiao J. Evidence for an intra-tumoral microbiome in pituitary neuroendocrine tumors with different clinical phenotypes. J Neurooncol. 2023 May 4. doi: 10.1007/s11060-023-04318-2. Epub ahead of print. PMID: 37140882.

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