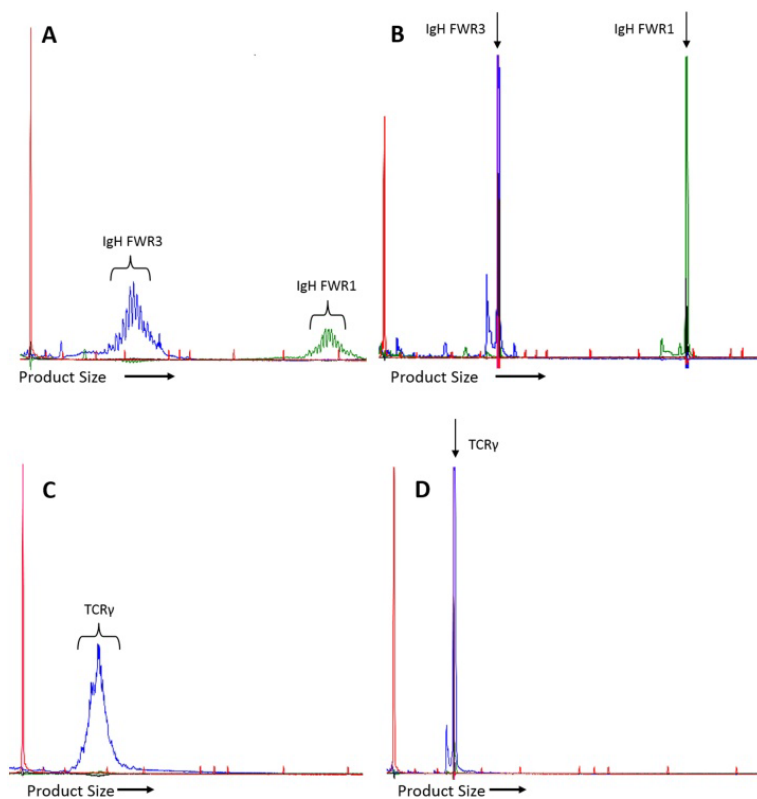


PCR for antigen receptor rearrangements (PARR)

PARR is a PCR test used to detect clonality within a population of proliferating T or B cells. It can be useful to distinguish between inflammatory and neoplastic T and B lymphocytes as well as cases where there is some ambiguity over the morphological diagnosis. The principle of the test is based on determining the presence of clonal rearrangements of the T cell receptor γ (T cells) or immunoglobulin heavy chains (B cells).

In animals with inflammatory disease, a polyclonal expansion of T and B cells typically occurs which results in a wide peak on the PARR electropherogram, as depicted below (A and C, B and T cells respectively). There are some exceptions to this, most notably in dogs infected with *Ehrlichia canis* where clonal expansion of T cells can occur.

In animals with lymphoid neoplasia, a clonal expansion of T and B cells occurs which results in a tall sharp peak on the electropherogram (B and D below, B and T cells respectively).



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It is important to note that there are some cases where results may not be conclusive. Some neoplasms may have clonal expansion of both T and B cell receptors. Furthermore one type

of neoplasm may have clonally rearranged receptors of the other type. It is for this reason that this test is unsuitable for phenotyping a lymphoid neoplasm.

Samples suitable for this test include: cytology smears (adequately cellular), body cavity fluids, tissues (fresh or formalin-fixed, paraffin-embedded), and blood.