

Cluster of Differentiation 117 (CD117) Immunohistochemistry

Test Description

CD117, encoded by the proto-oncogene c-kit, is a transmembrane protein belonging to the type III subfamily of the receptor tyrosine kinases. It has extracellular, intramembranous and intracellular domains. By binding to its ligand, called stem cell factor, this molecule plays an important part in regulating cellular activities, such as apoptosis, cell differentiation, proliferation, and cell adhesion. This marker has been identified as a key oncogenic driver in a variety of solid tumors. It has been shown to play a role in the proliferation of a number of cell types, including mast cells, melanocytes, germ cells, and hematopoietic stem cells. CD117 staining is useful in the diagnosis of gastrointestinal stromal tumors (GISTs), germ cell tumors, mast cell disorders and acute myeloid leukemias.

Specimen

Sample Type: FFPE block MBCL 134(T)

Site: Lung

Pathology ID: MOLQ/IHC-14042019

Disease: Adenoid Cystic Carcinoma

Interpretation

Positive CD117 staining/expression is defined as membrane or cytoplasmic staining in >10% of tumor cells. If additional interpretation or analysis is needed, send request for Pathology Consultation.

Methodology

Immunostaining for CD117 protein was done using PathnSitu Rabbit Anti-Human CD117 polyclonal antibody (#PP088).

Note

CD117 expression in NSCLC may serve as a useful marker for predicting the prognosis of patients with NSCLC. A number of complex somatic alterations that extend beyond protein kinase activity to include transcription factors, epigenetic modifiers, and splicing variants were recently reported in NSCLCs. CD117-positive NSCLC cells reportedly exhibit cancer stem cell characteristics including self-renewal and chemoresistance. The positive expression of CD117 is significantly associated with a shorter relapse-free survival rate in patients with NSCLC suggesting that CD117 may serve as a prognostic marker for predicting poor prognoses and a novel therapeutic target for patients with NSCLC.

References

1. Rosai and Ackerman's Surgical Pathology.
2. Brittni M Foster et al. CD117/c-kit in Cancer stem cell-mediated progression and therapeutic resistance Biomedicines 2018 6:1
3. Tomohiko Sakabe et al. CD117 expression is a predictive marker for poor prognosis in patients with non-small cell lung cancer. Oncology Letter 2017 13:5
4. Fuyou Zhao et al. Prognostic value of CD117 in cancer: a meta-analysis. Int J Clin Exp Pathol 2014 7:3

Cluster of Differentiation 117 (CD117): Negative

Microscopy Evaluation

Section examined show no immunoreactivity for CD117 in tumor cells.

CD117 immunoreactivity in Tumor cells: Negative

CD 117 IHC- Tumor

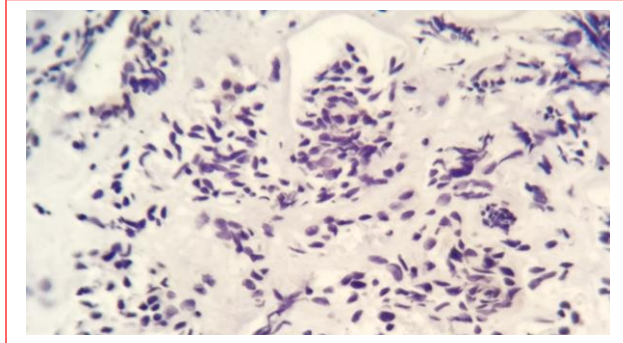


Figure 1

CD 117 IHC- Tumor

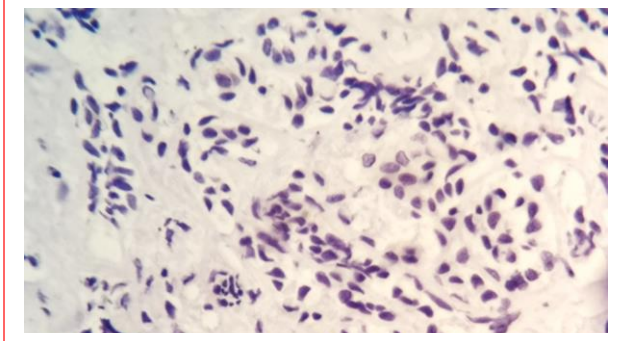


Figure 2



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