

EB病毒轉染淋巴細胞之經驗談

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What is Epstein-Barr virus(EBV)?



Family : Herpesviridae



Subfamily : Gammaherpesvirinae

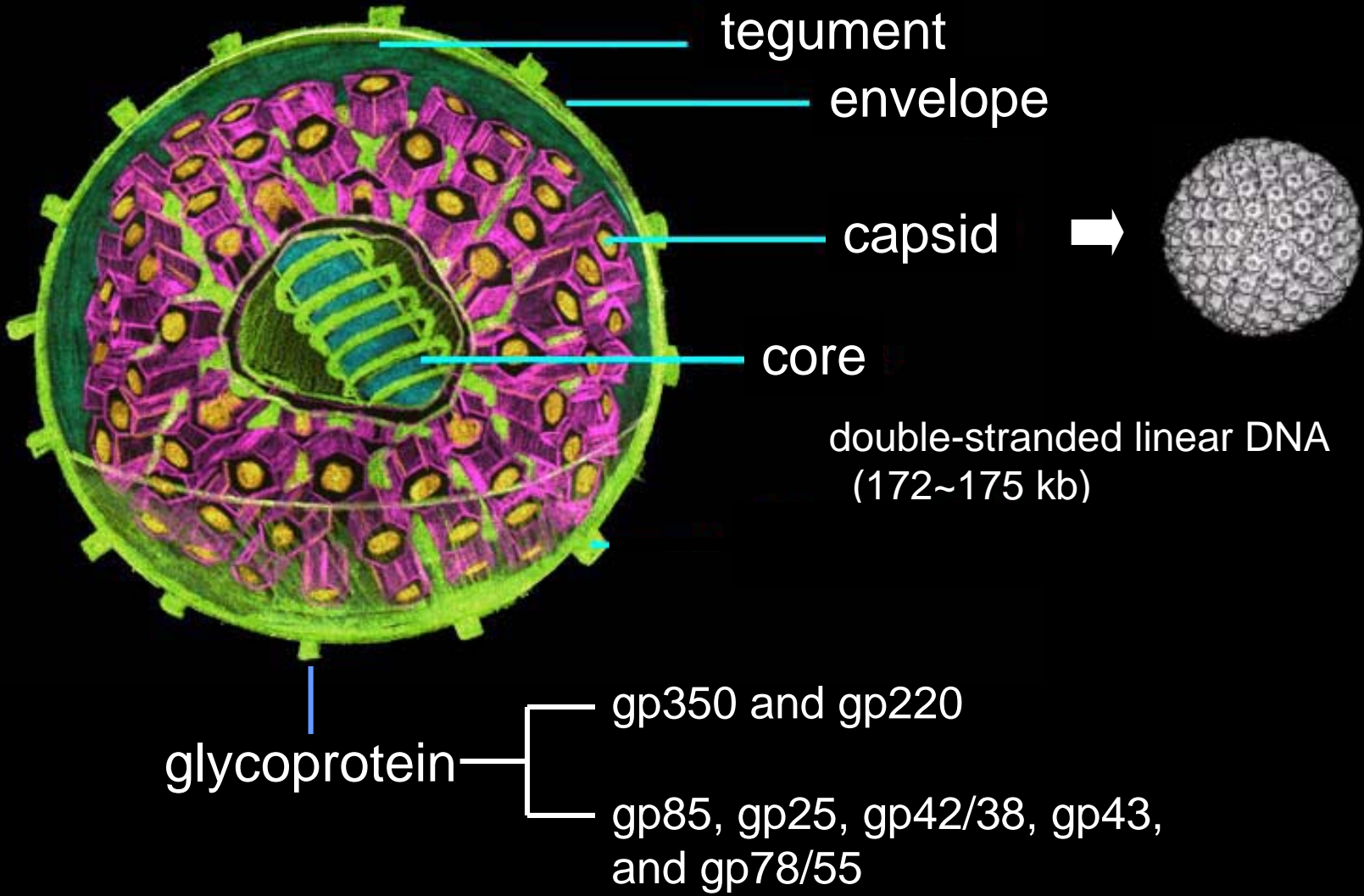


Genus : Lymphocryptovirus



human herpesvirus 4
(HV-4, Epstein-Barr virus)

What is Epstein-Barr virus(EBV)?



Pathology and epidemiology of EBV

Infectious mononucleosis - acute viral syndrome with fever, sore throat, splenomegaly and lymphadenopathy; one to several weeks, rarely fatal

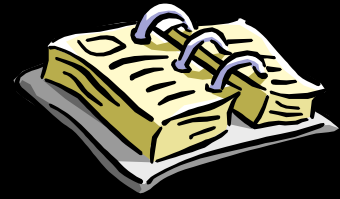
Burkitt's lymphoma - monoclonal tumour of B cells

Nasopharyngeal carcinoma –malignant tumour of epithelial cells of the nasopharynx



EBV and B cell transformation

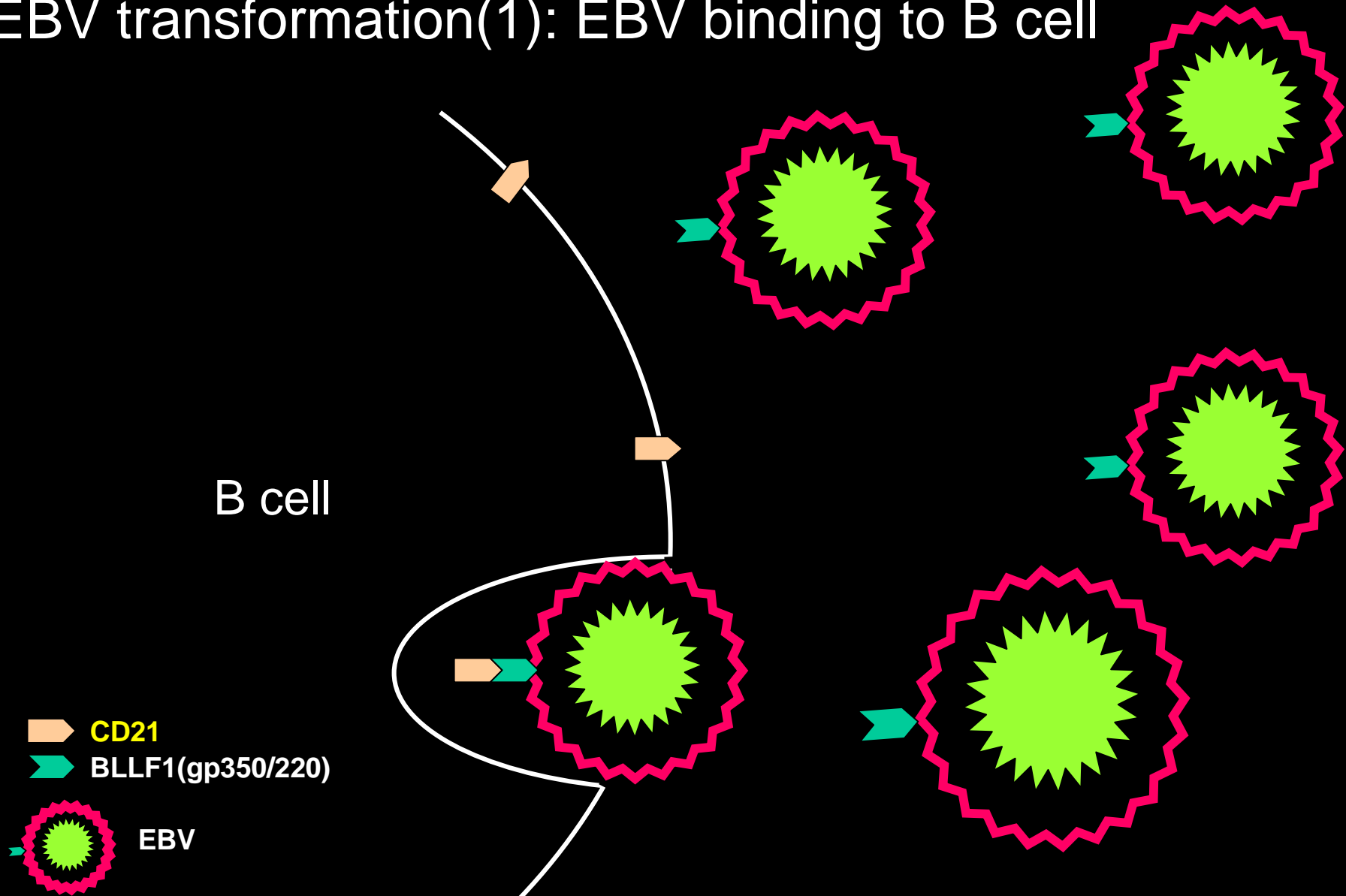
History



- 1958 first description of Burkitt's lymphoma
- 1964 Continuous cell lines were isolated from Burkitt lymphoma cells
- 1968 EBV is the etiological agent of infectious mononucleosis
- 1969 EBV can immortalize lymphocytes and marmoset cells.
- Present EBV transformation is a routine method for establishment of B cell line

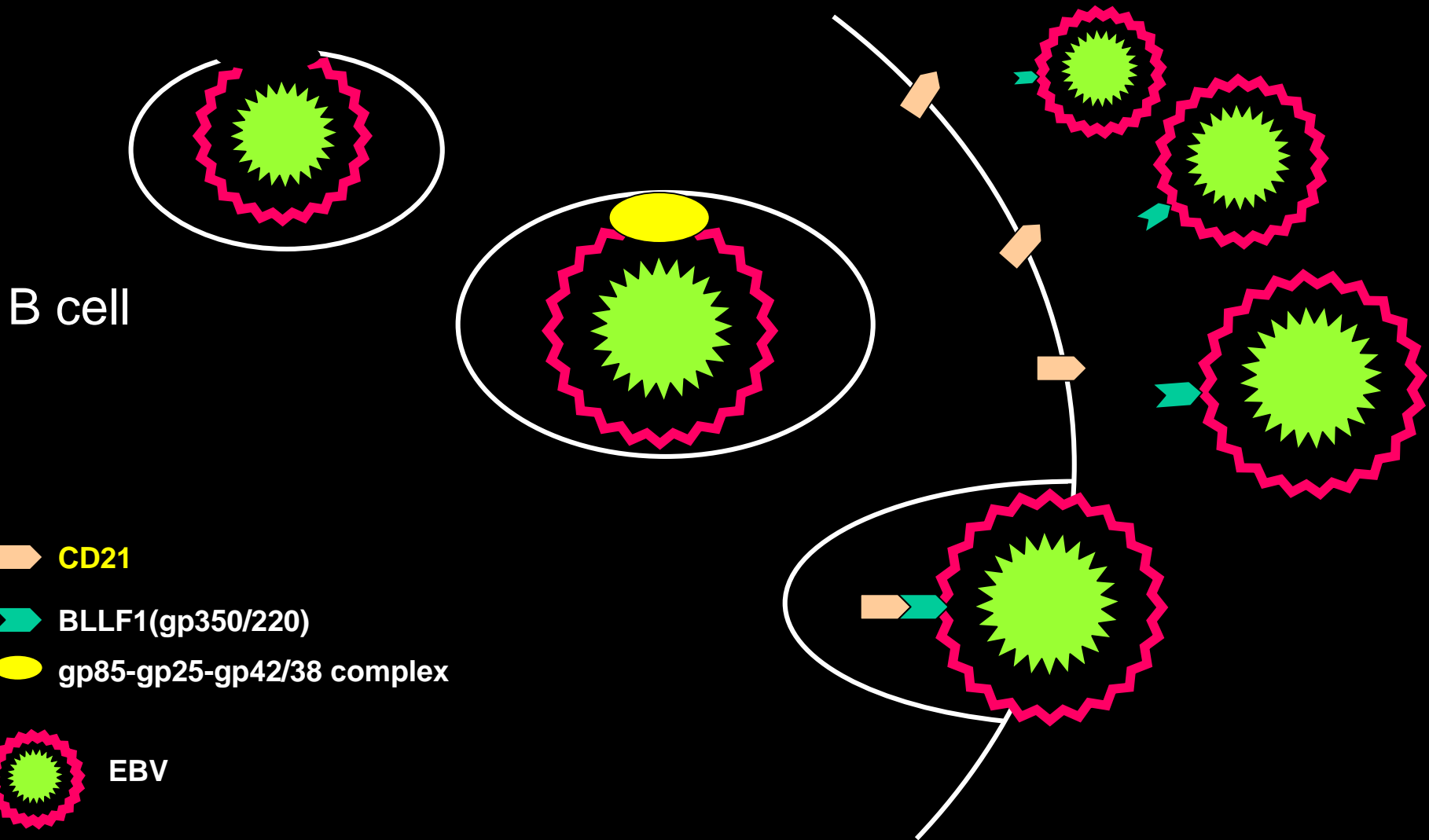
EBV and B cell transformation

EBV transformation(1): EBV binding to B cell



EBV and B cell transformation

EBV transformation(2): EBV release in B cell



EBV and B cell transformation

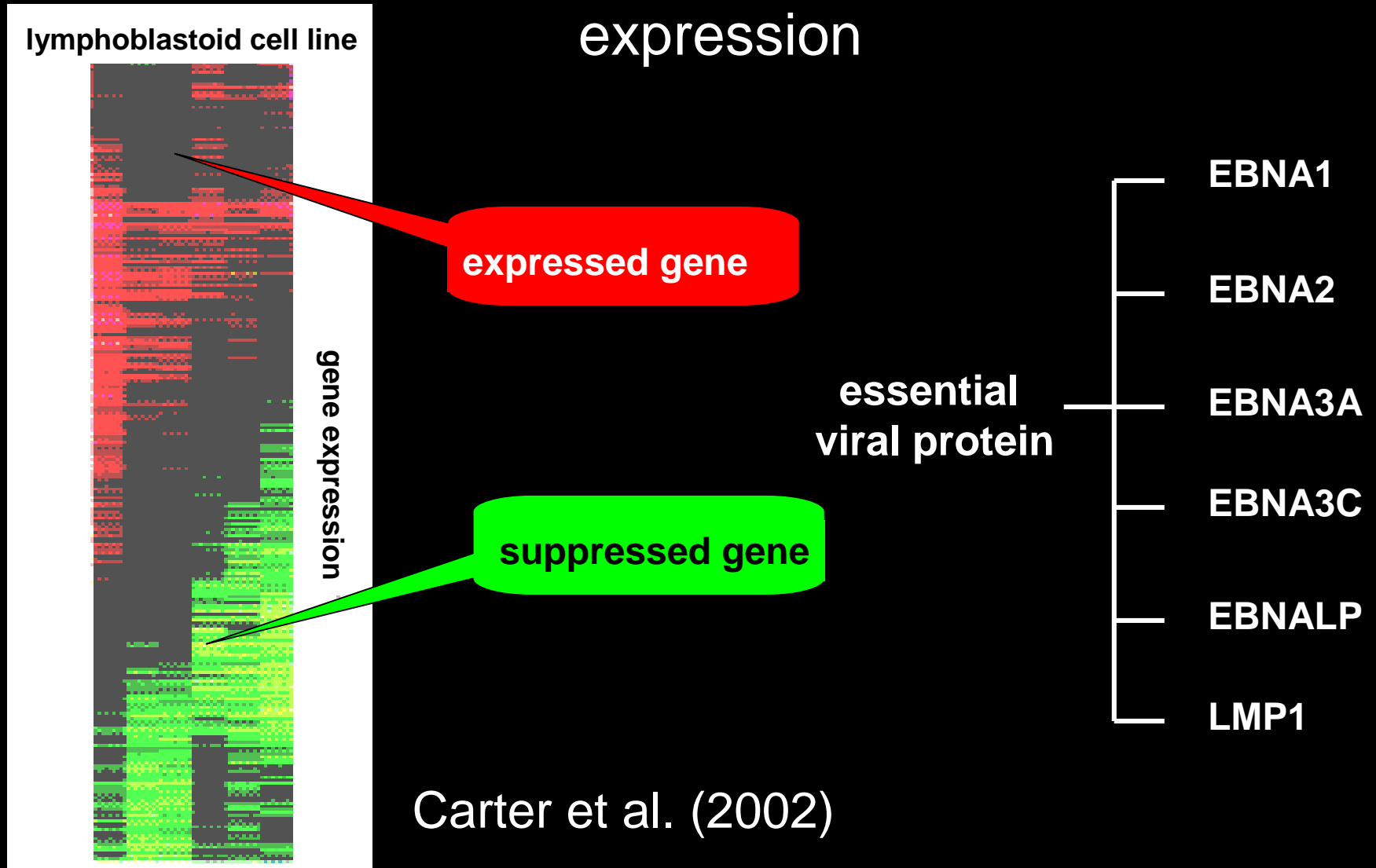
EBV transformation(3): B cell proliferation

Lymphoblastoid cell lines (LCLs)

1. production of acidic(yellowish) medium
2. clumping of cells
3. exponential increase in cell number.

EBV and B cell transformation

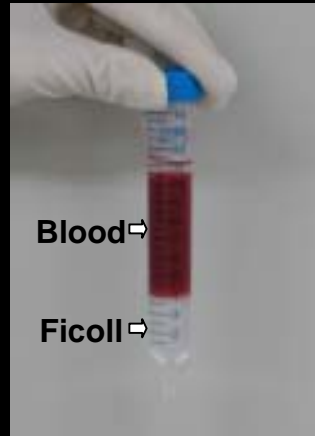
EBV transformation(4): EBV induced changes in gene expression



EBV transformation in FIRDI



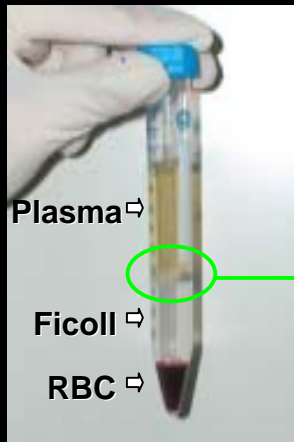
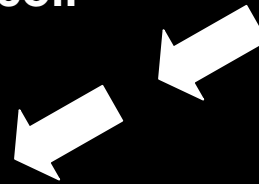
1. Separation of mononuclear cell(MNC)



layer on Ficoll

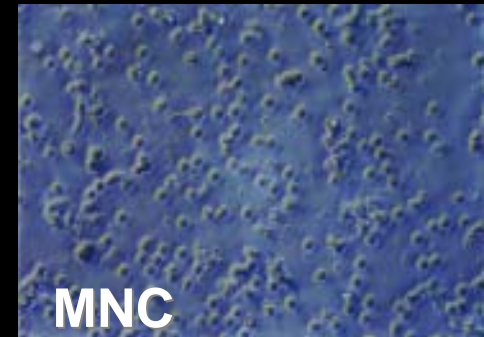


density gradient centrifugation



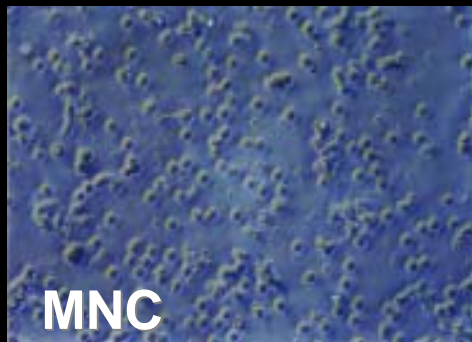
Buffy coat
(MNC rich)

wash and centrifugation

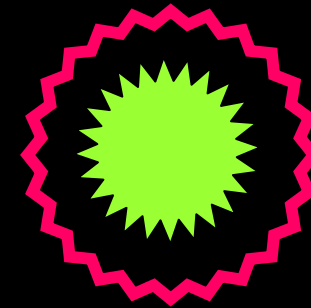


MNC

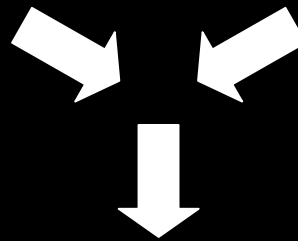
2. Infection of Epstein-Barr virus(EBV)



MNC



Epstein-Barr Virus



37 incubation



remove of EBV

3. Establishment of B lymphocyte cell line



6-10 weeks culture period



increased
cell number



cryopreservation

Conclusion

