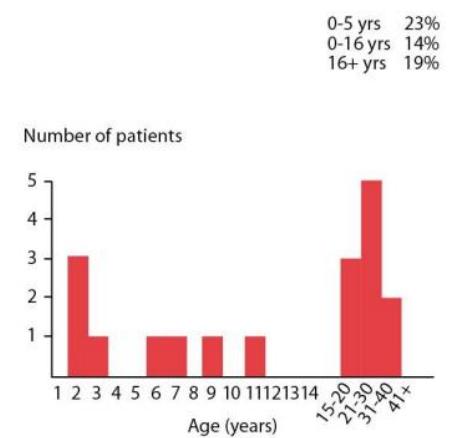
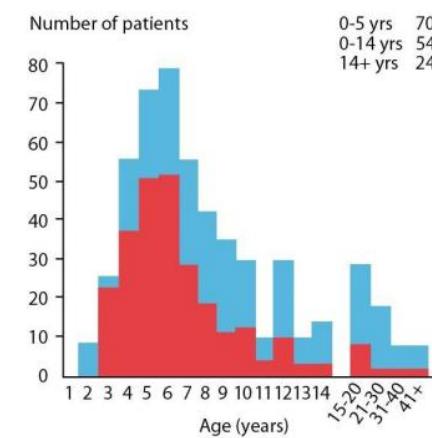
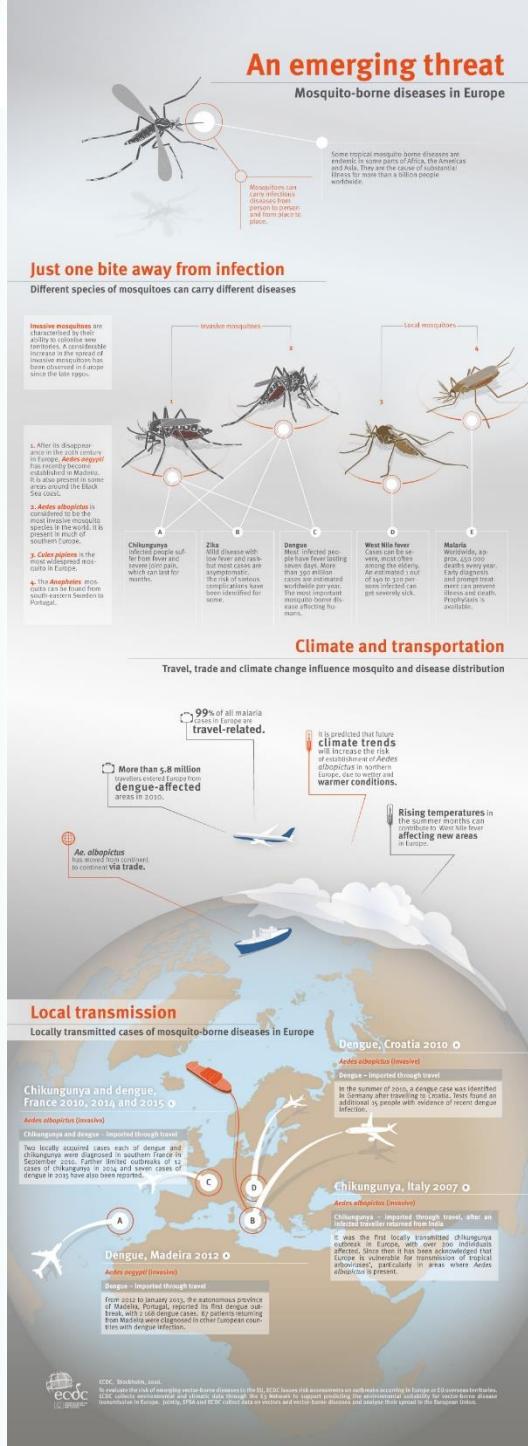
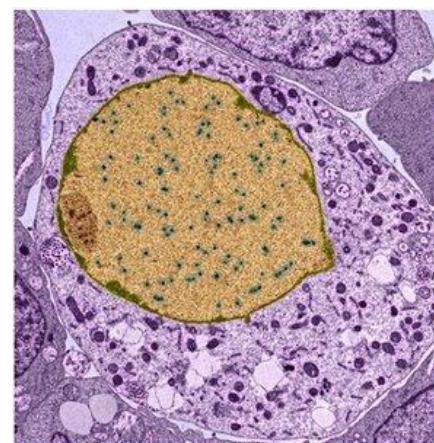


Burkitt lymfoom





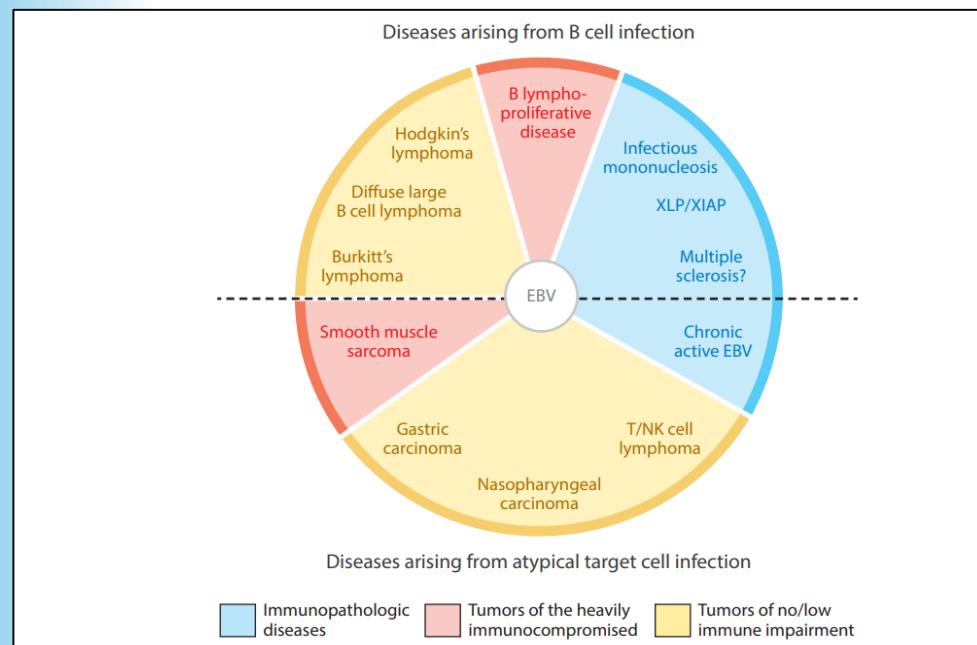
Burkitt lymphoma



Group 1 agent	Cancers for which there is sufficient evidence in humans	Other sites with limited evidence in humans	Established mechanistic events
Epstein-Barr virus (EBV)	Nasopharyngeal carcinoma, Burkitt's lymphoma, immune-suppression-related non-Hodgkin lymphoma, extranodal NK/T-cell lymphoma (nasal type), Hodgkin's lymphoma	Gastric carcinoma,* lympho-epithelioma-like carcinoma*	Cell proliferation, inhibition of apoptosis, genomic instability, cell migration
Hepatitis B virus (HBV)	Hepatocellular carcinoma	Cholangiocarcinoma,* non-Hodgkin lymphoma*	Inflammation, liver cirrhosis, chronic hepatitis
Hepatitis C virus (HCV)	Hepatocellular carcinoma, non-Hodgkin lymphoma*	Cholangiocarcinoma*	Inflammation, liver cirrhosis, liver fibrosis
Kaposi's sarcoma herpes virus (KSHV)	Kaposi's sarcoma,* primary effusion lymphoma*	multicentric Castleman's disease*	Cell proliferation, inhibition of apoptosis, genomic instability, cell migration
Human immunodeficiency virus, type 1 (HIV-1)	Kaposi's sarcoma, non-Hodgkin lymphoma, Hodgkin's lymphoma,* cancer of the cervix,* anus,* conjunctiva*	Cancer of the vulva,* vagina,* penis,* non-melanoma skin cancer,* hepatocellular carcinoma*	Immunosuppression (indirect action)
Human papillomavirus type 16 (HPV-16)†	Carcinoma of the cervix, vulva, vagina, penis, anus, oral cavity, and oropharynx and tonsil	Cancer of the larynx	Immortalisation, genomic instability, inhibition of DNA damage response, anti-apoptotic activity
Human T-cell lymphotropic virus, type-1 (HTLV-1)	Adult T-cell leukaemia and lymphoma	..	Immortalisation and transformation of T cells
<i>Helicobacter pylori</i>	Non-cardia gastric carcinoma, low-grade B-cell mucosa-associated lymphoid tissue (MALT) gastric lymphoma*	..	Inflammation, oxidative stress, altered cellular turnover and gene expression, methylation, mutation
<i>Clonorchis sinensis</i>	Cholangiocarcinoma*
<i>Opisthorchis viverrini</i>	Cholangiocarcinoma	..	Inflammation, oxidative stress, cell proliferation
<i>Schistosoma haematobium</i>	Urinary bladder cancer	..	Inflammation, oxidative stress

*Newly identified link between virus and cancer. †For other types, see table 2.

Table 1: Biological agents assessed by the IARC Monograph Working Group



Cancer type	% estimated global EBV-related case proportion	Estimated incidence range of EBV-related cases	Estimated mortality range of EBV-related cases
NPC	84.6 ¹	105,500–120,600	61,600–74,300
GC	7.7–10.4 ²	82,800–116,400	58,200–82,300
HL	45.8–58.3 ²	34,300–52,400	9400–17,400
BL	55 ¹	6600 ¹	3000–3200
DLBCL	3.6–12.8 ²	4900–27,000	2500–13,300
ENKTL-NT	100 ³	5500–34,700	3000–18,100
Cancer types combined	1.3–1.9 ²	239,700–357,900	137,900–208,700

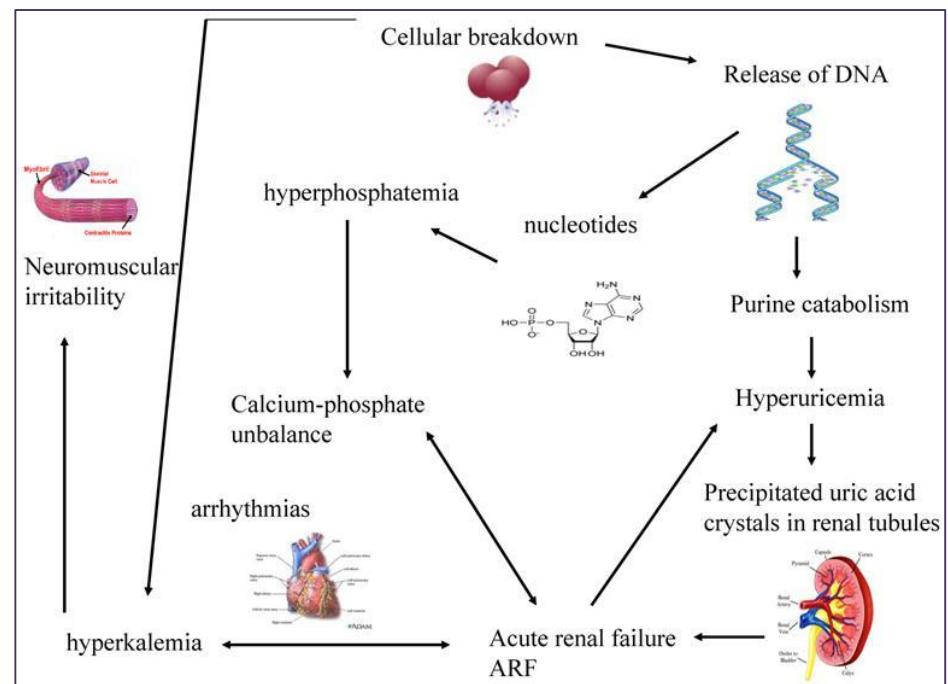
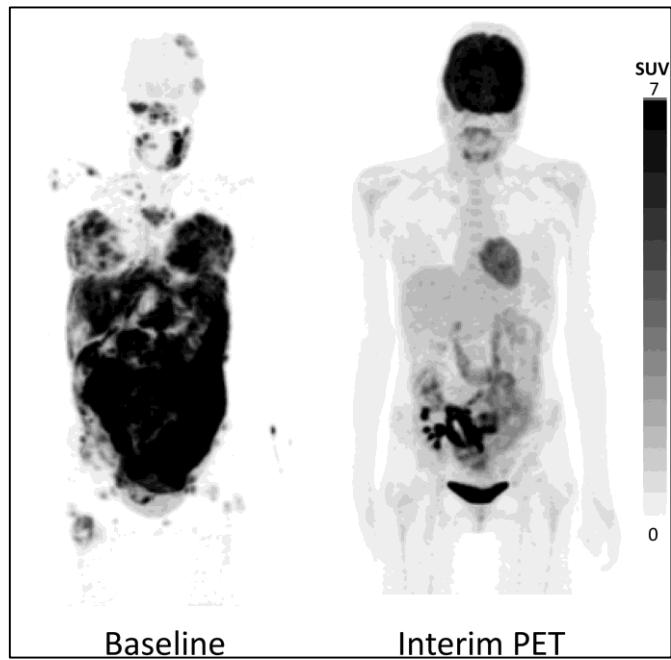
Bouvard V, et al. Lancet Oncol 2009;10:321-2
 Taylor GS, et al. Annu Rev Immunol 2015;33:787-821
 Wong Y, et al. J Cancer Res Clin Oncol 2022;148:31-46

Burkitt lymfoom

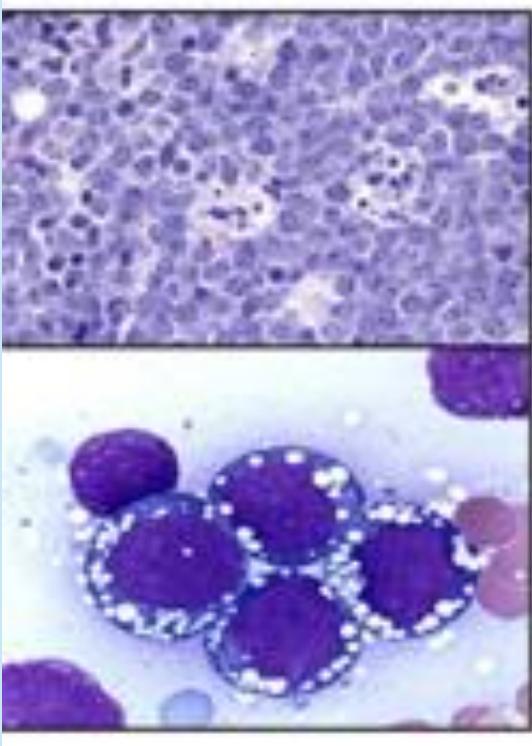
Table 1. Comparison of Endemic, Sporadic, and HIV-Associated Burkitt's Lymphoma

Variable	Endemic	Sporadic	HIV Associated
Epidemiology	Equatorial Africa and Papua, New Guinea. Regions of South America.	Worldwide	Worldwide
Incidence	Five to 10 cases per 100,000 people	Two to three cases per 1 million people	Six per 1,000 AIDS cases
Age and sex	Peak incidence: 4-7 years. Male/female ratio of 2:1.	Median age: 30 years. Male/female ratio of 2-3:1.	Median age: 44 years. Associated with CD4 counts > 100/mm ³ .
Epstein-Barr virus positivity	100%	25% to 40%	25% to 40%
Genomics	<i>MYC</i> mutation, 100%; <i>ID3</i> and/or <i>TCF3</i> mutations, 40%; <i>CCND</i> mutations, 1.8%.	<i>MYC</i> mutation, 100%; <i>ID3</i> and/or <i>TCF3</i> mutations, 70%; <i>CCND</i> mutations, 38%.	<i>MYC</i> mutation, 100%; <i>ID3</i> and/or <i>TCF3</i> mutations, 67%; <i>CCND</i> mutations, 67%.
Clinical presentation	Jaw and facial bones in approximately 50% of cases. Also involves mesentery and gonads. Increased risk of CNS dissemination.	Ileocecal region is most common area of involvement. Other extranodal sites include bone marrow, ovaries, kidneys, and breasts. Increased risk of CNS dissemination.	Nodal presentation most common, with occasional bone marrow. Increased risk of CNS dissemination.

Burkitt lymfoom



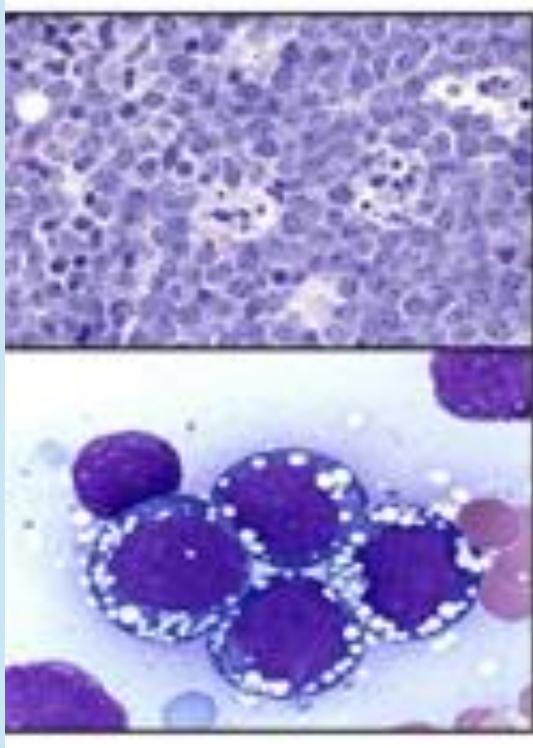
Burkitt lymfoom



Starry sky

Crombie J, LaCasce A. Blood 2021;137:743-50
https://www.reddit.com/r/medicalschool/comments/jj25j9/shitpost_burkitt_lymphoma/

Burkitt lymfoom

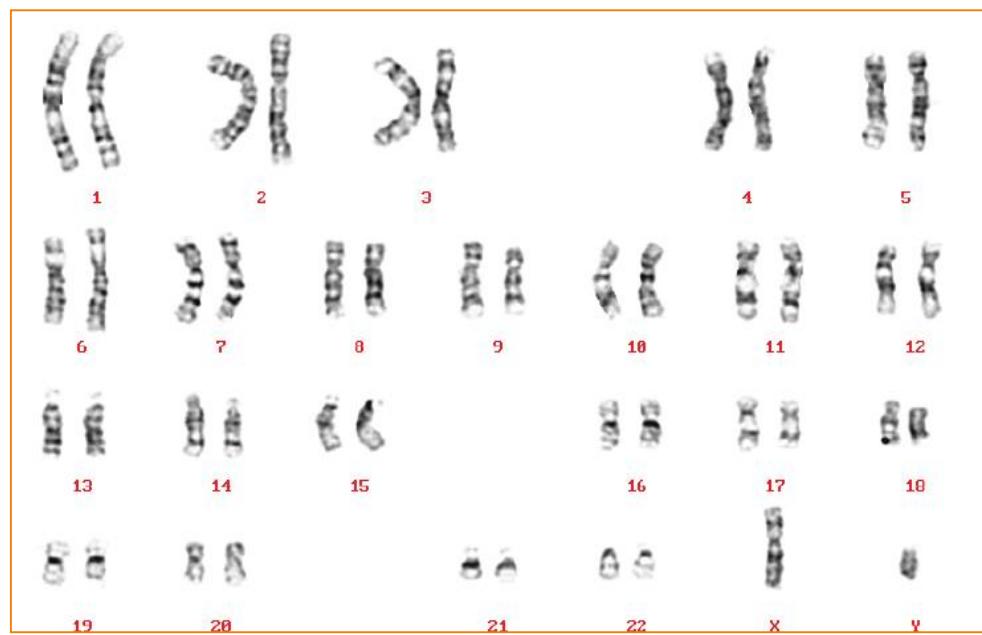


Starry sky

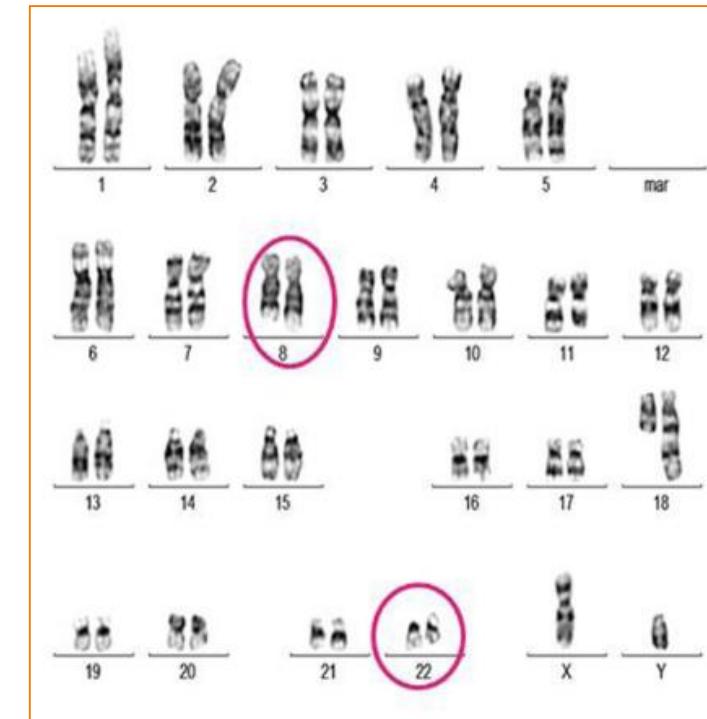
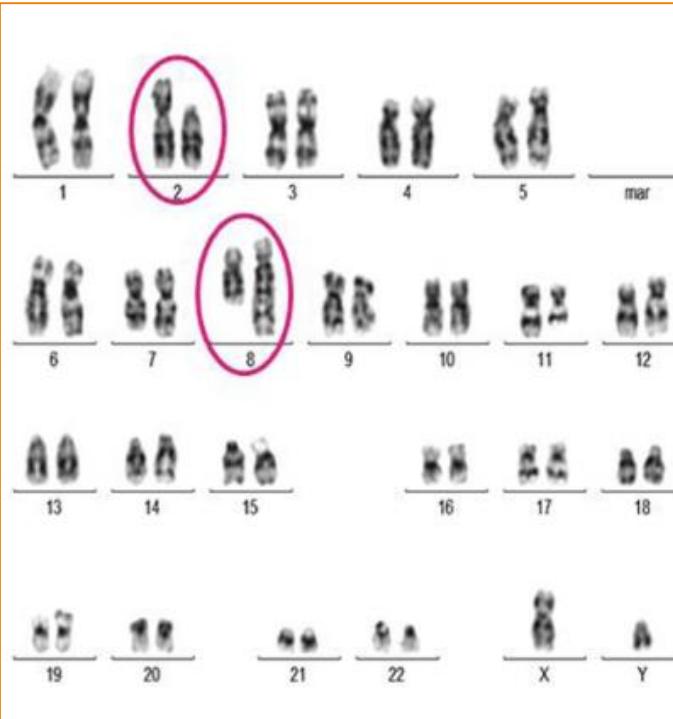
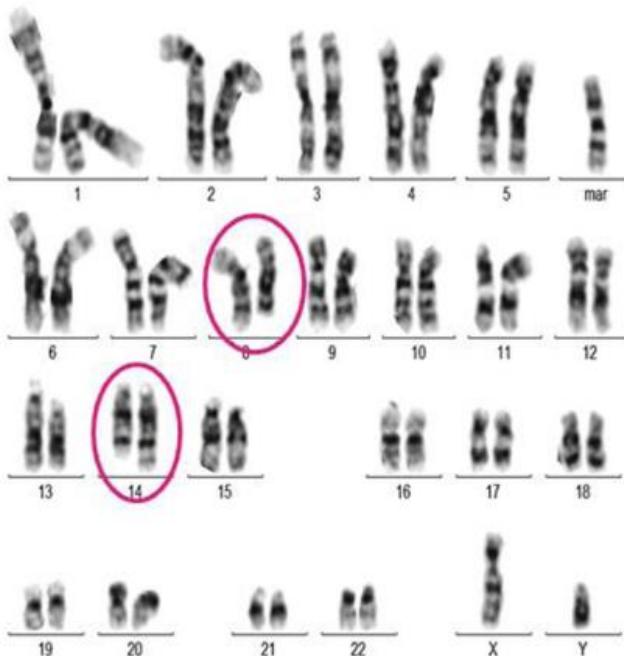


Crombie J, LaCasce A. Blood 2021;137:743-50
https://www.reddit.com/r/medicalschool/comments/jj25j9/shitpost_burkitt_lymphoma/

Burkitt lymfoom

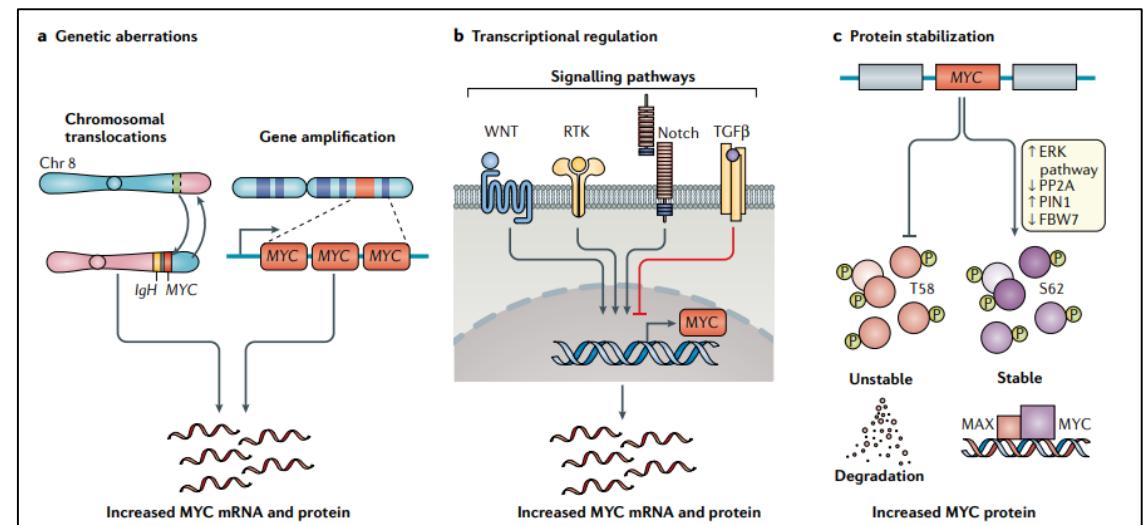
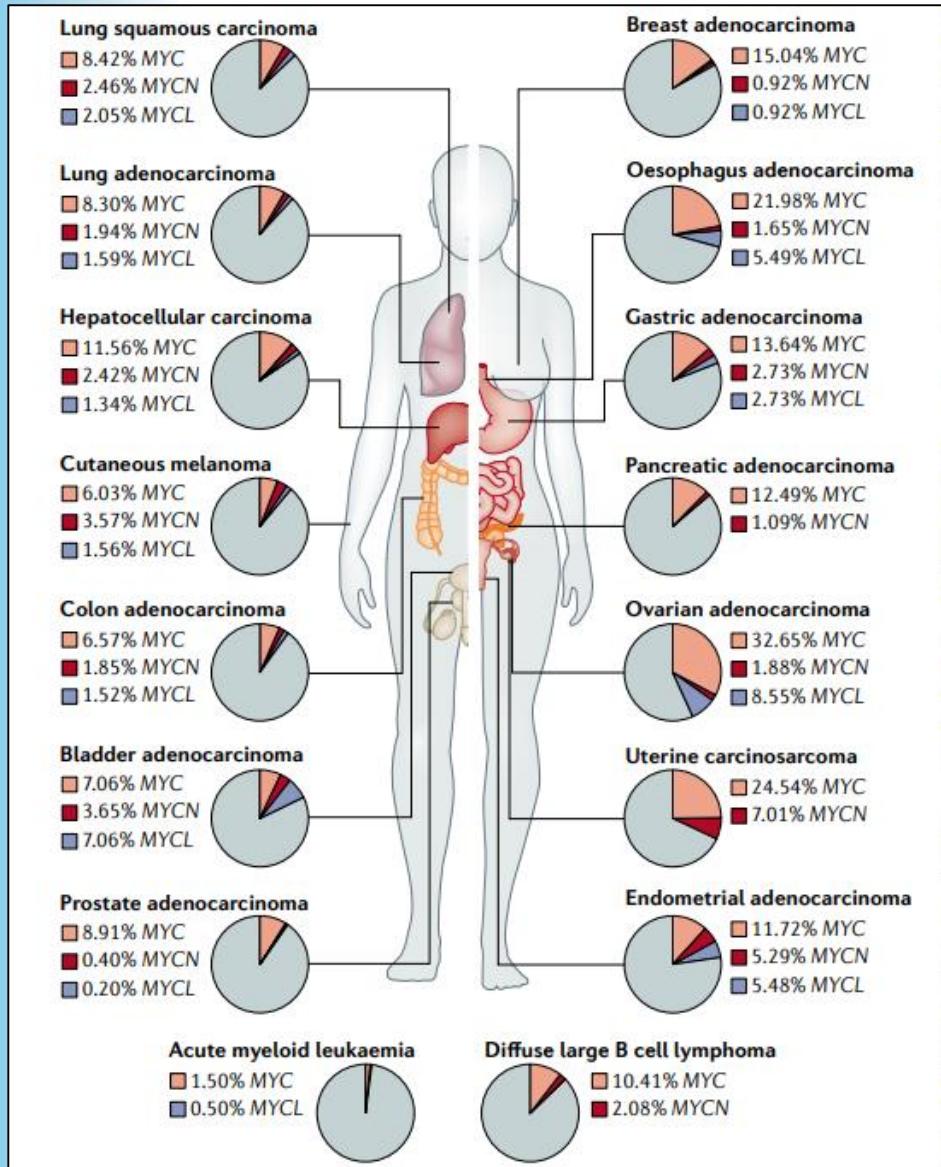


Burkitt lymfoom

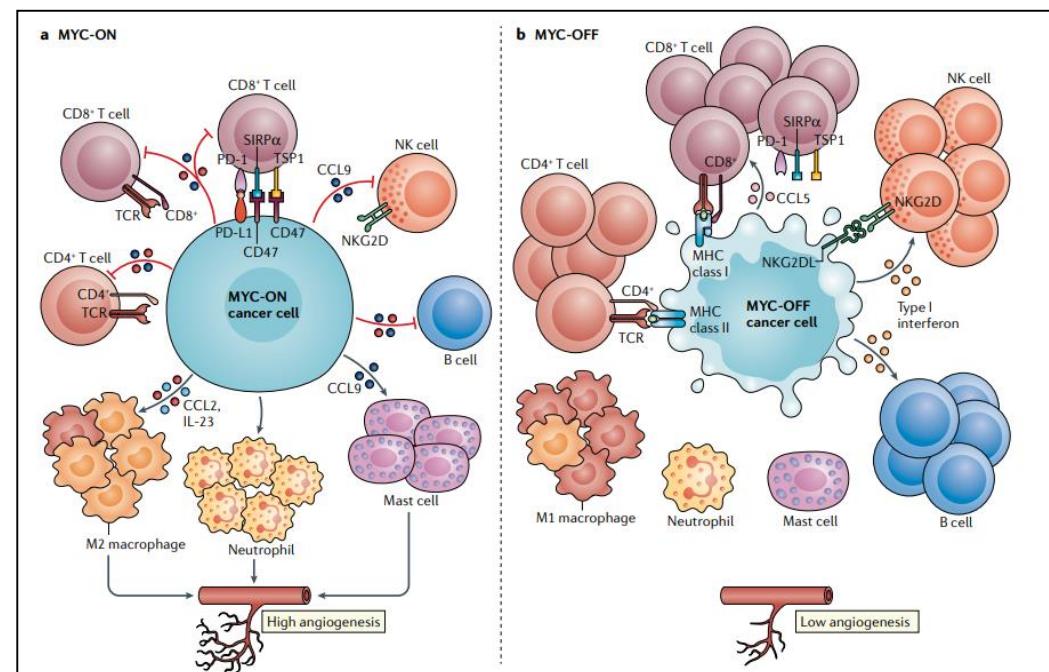
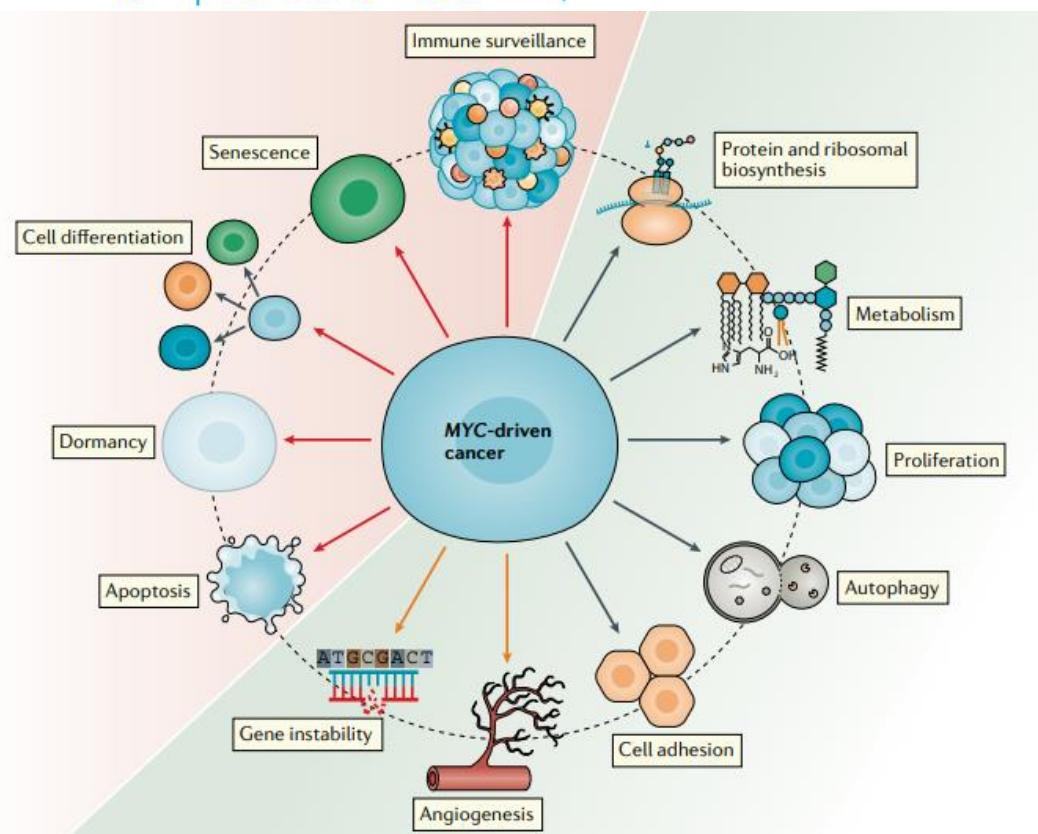


MYC

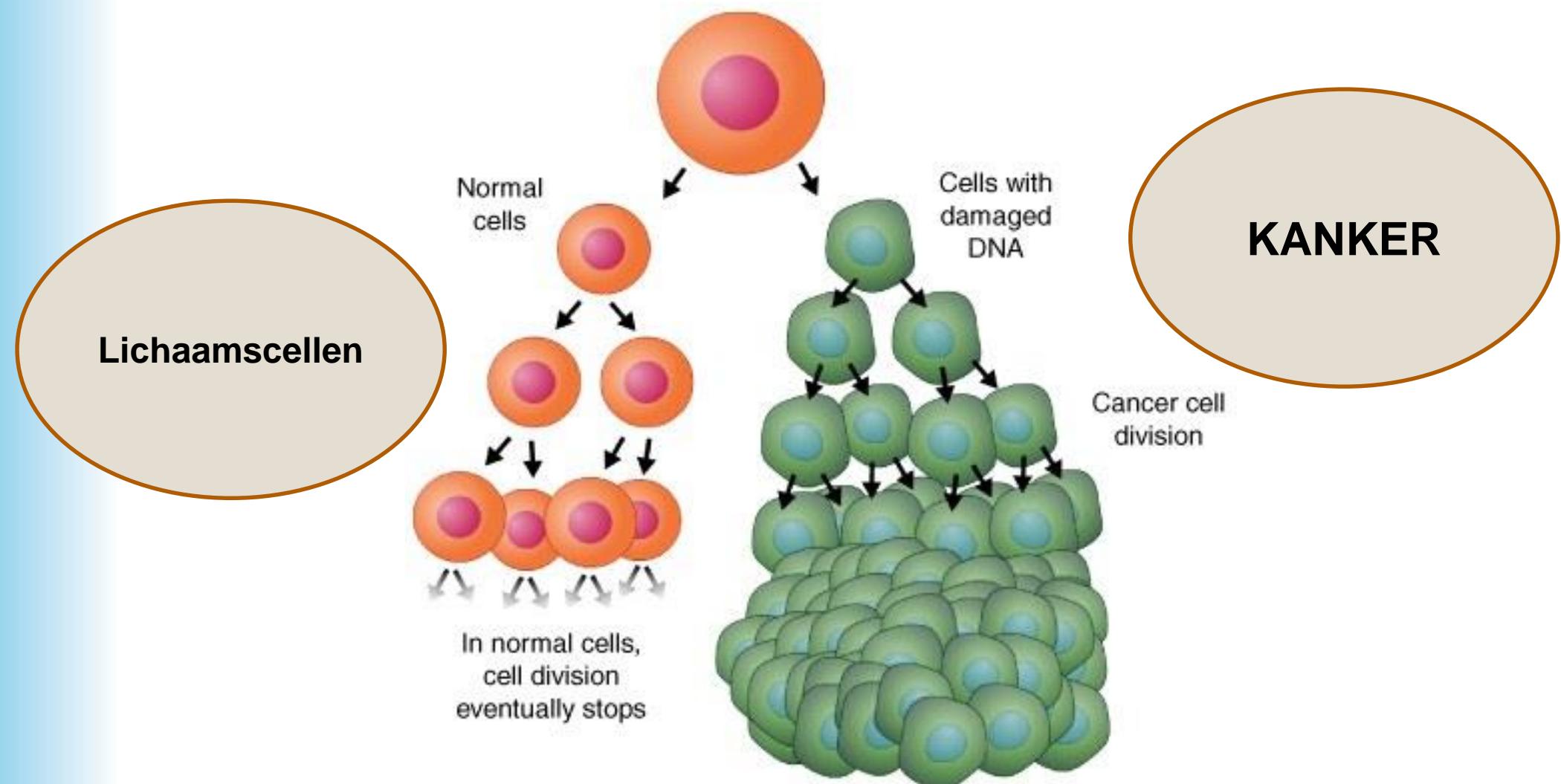
Burkitt lymfoom



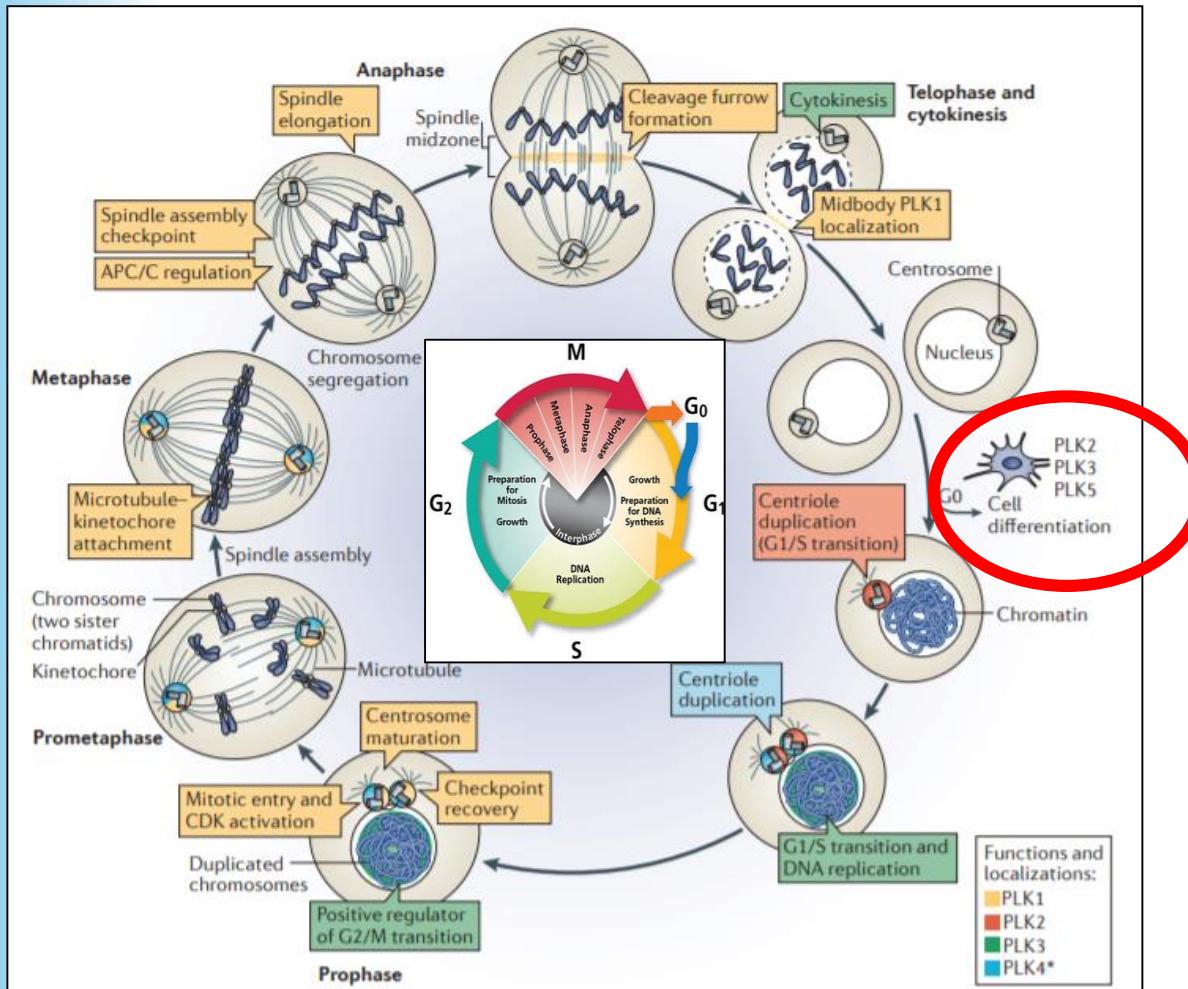
Burkitt lymfoom



Burkitt lymfoom



Burkitt lymfoom



Burkitt lymfoom

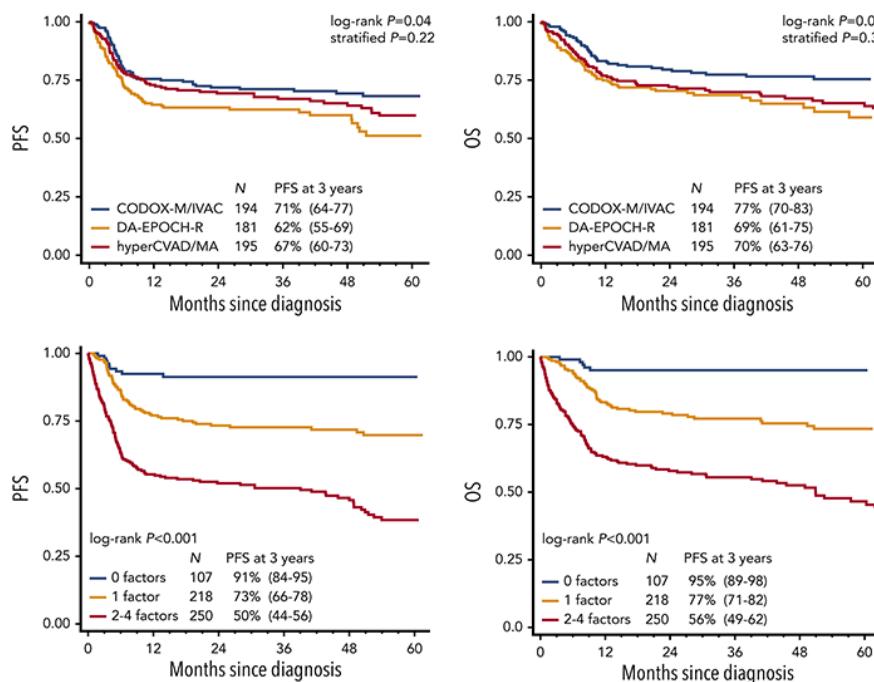
Regimen	No. of Patients	Histology	Median Age, Years (range)	Stage (%)	EFS
LMB 89 ¹⁹	561	Burkitt's/B-ALL	8 (0.17-18)	III-IV (79)	92% at 5 years
Modified LMB ²⁰	72	Burkitt's/B-ALL	33 (18-76)	III-IV (67)	65% at 2 years
BFM 90 ²¹	413	Burkitt's/B-ALL	9 (1.2-17.9)	III-IV (60)	89% at 6 years
CODOX-M/IVAC ²²	21 children	Burkitt's	12 (3-17)	III-IV (78)	85% (children) and 100% (adults) at 2 years
	20 adult	B-ALL	25 (18-59)		
CODOX-M/IVAC ¹⁵	52	Burkitt's	35 (15-60)	III-IV (61)	65% at 2 years
Hyper-CVAD ²³	26	Burkitt's/B-ALL	58 (17-79)	NA	61% at 3 years for DFS
R-Hyper-CVAD ²⁴	31	Burkitt's/B-ALL	46 (17-77)	NA	80% at 3 years
GMALL-B-ALL/NHL 2002 ²⁸	363	Burkitt's/B-ALL	42 (16-85)	III-IV (71)	PFS 75% at 5 years
DA-EPOCH-R ²⁶	19	Burkitt's	25 (15-88)	III-IV (58)	FFP 95% at 7 years
SC-EPOCH-RR ²⁶	11	Burkitt's HIV positive	44 (24-60)	III-IV (82)	FFP 100% at 6 years
LMB +/- R ²⁵	260	Burkitt's	NA	III-IV (62)	EFS 75% v 62% (+R/-R) at 3 years
AMC 048 ²⁷	34	Burkitt's HIV positive	42 (19-55)	III-IV (74)	PFS 69% at 1 year
Modified R-CODOX-M/IVAC					
Modified R-CODOX-M/IVAC ¹⁵	128	Burkitt's HIV negative	47 (IQR, 31-59)	III-IV (62)	EFS 75% at 3 years
RA-DA-EPOCH-R ¹⁸	113	Burkitt's HIV negative and HIV positive	49 (18-86)	III-IV (64)	PFS 86% at 3 years

Burkitt lymfoom

Burkitt Lymphoma in the Modern Era: Real World Outcomes and Prognostication

641 untreated adult patients
with Burkitt lymphoma
(across 30 US centers)

- Median age 47 years
- HIV+ status in 22%
- ECOG performance status 2-4 in 22%
- LDH >3x upper limit of normal in 39%
- CNS involvement in 19%



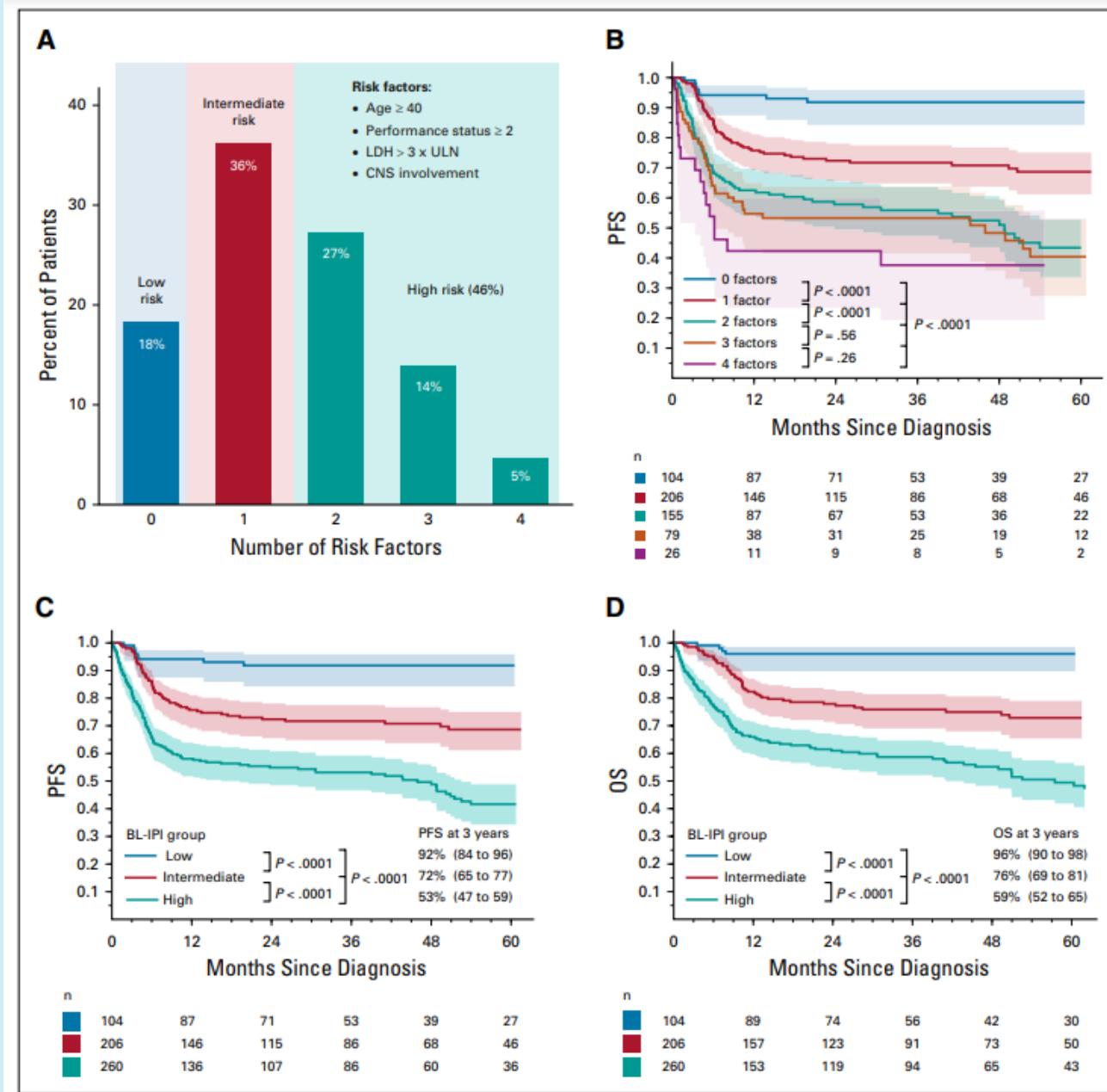
Findings:

- 10% treatment-related mortality and 14% with primary refractory disease
- 3-year PFS 64% for all patients
- Survival the same with inpatient or outpatient rituximab administration

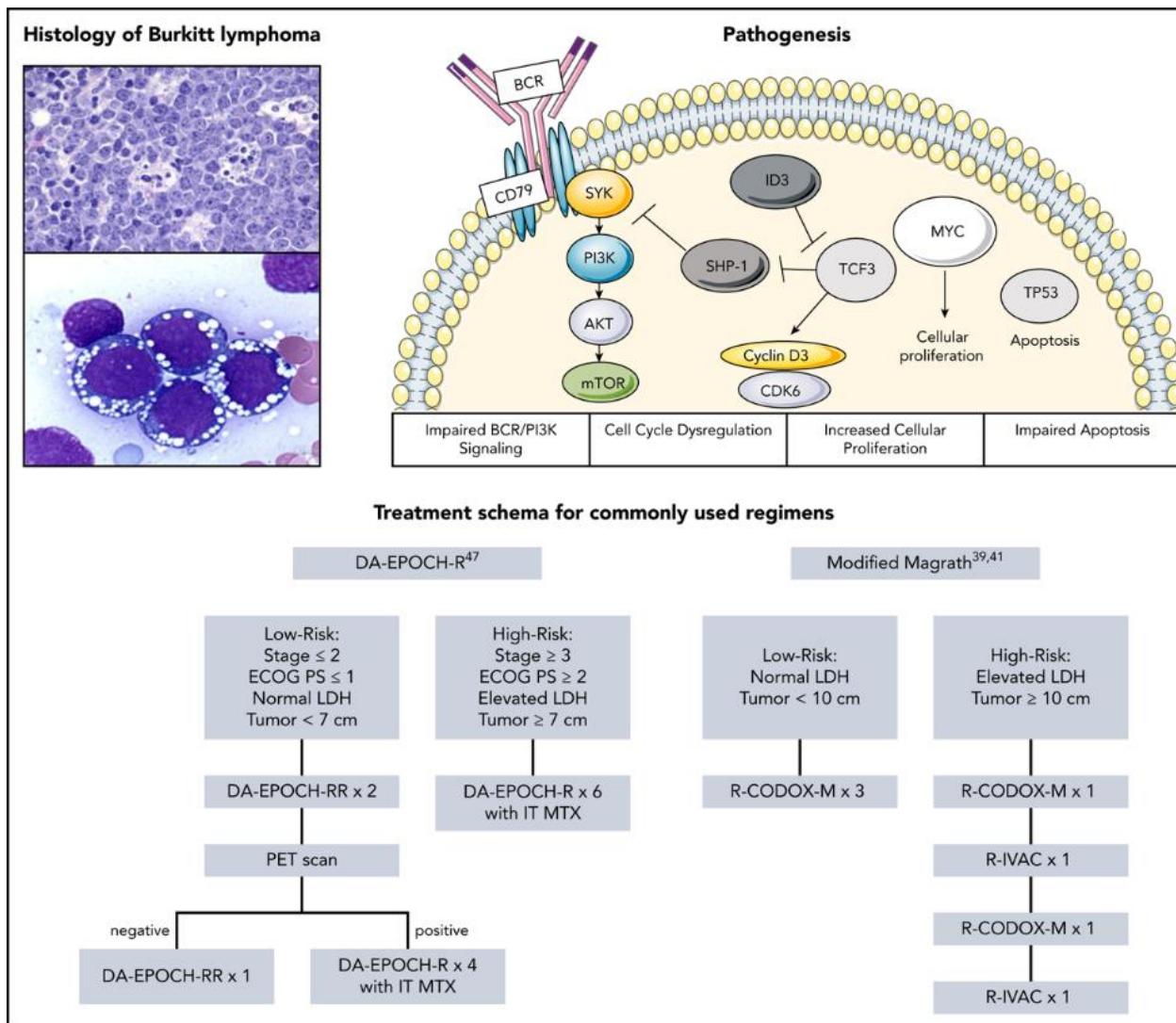
Significant prognostic factors on MVA:

- 1) Ages \geq 40 years
- 2) ECOG performance status \geq 2
- 3) LDH >3x upper limit of normal
- 4) CNS involvement

Burkitt lymfoom



Burkitt lymfoom



Burkitt lymfoom

