

They're Free. They're Light. They're so Important for Myeloma Patients to Understand!

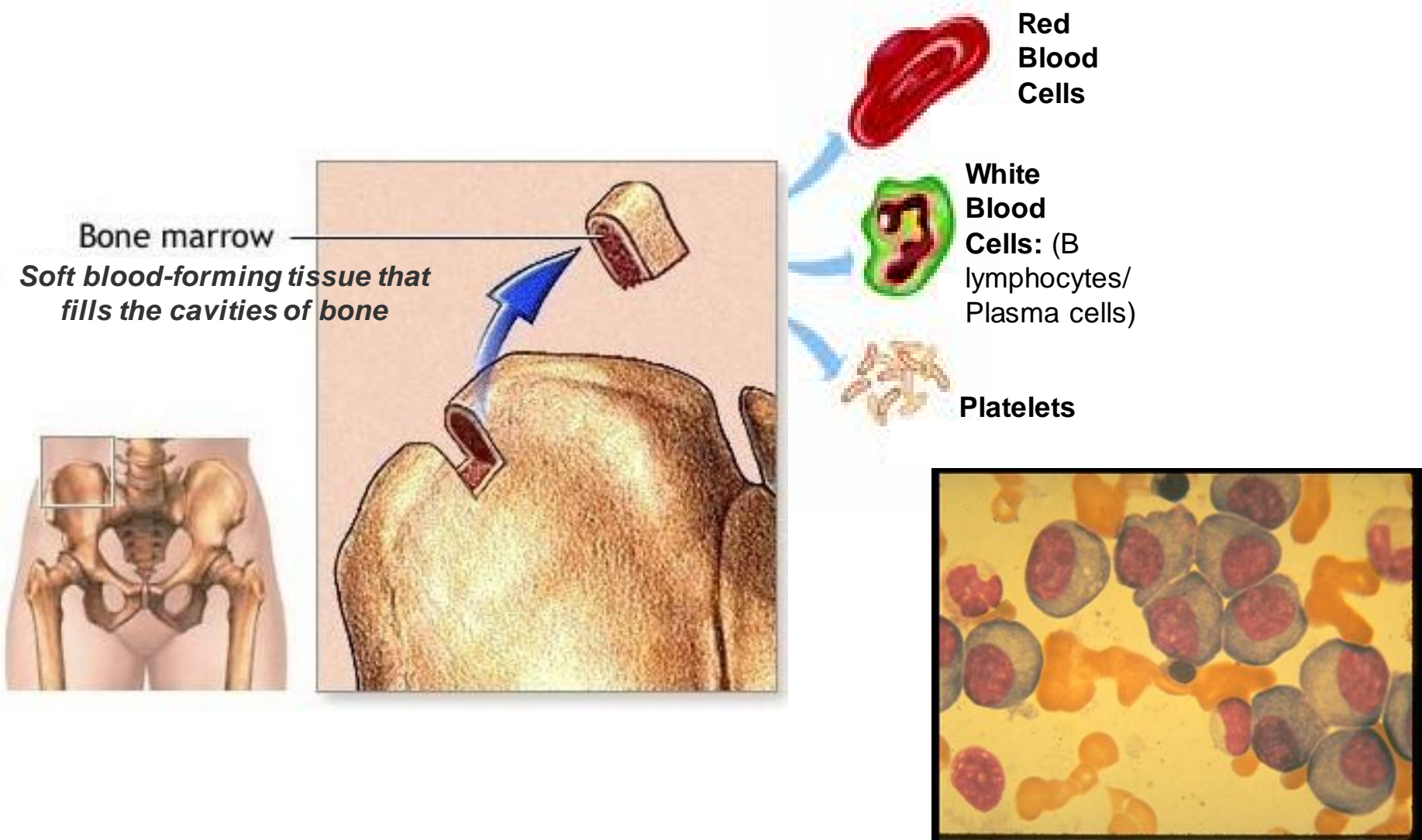
**(Learn about the serum free light chain test and
how to interpret your results)**

Anne L Sherwood, PhD
Director of Scientific Affairs
The Binding Site, Inc.

Myeloma starts... where?

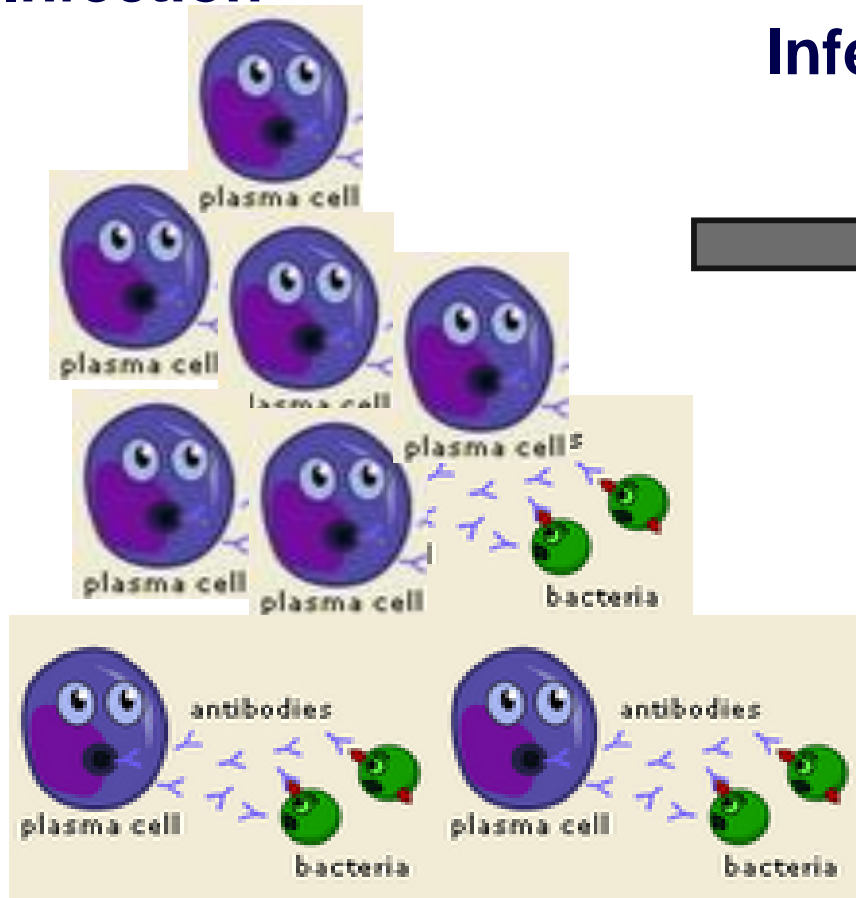
- **Bone Marrow**
- **Plasma Cells**
- **Antibodies and free light chains**

Multiple Myeloma: A Cancer of the Plasma Cells in the Bone Marrow



Plasma cells increase in response to infection

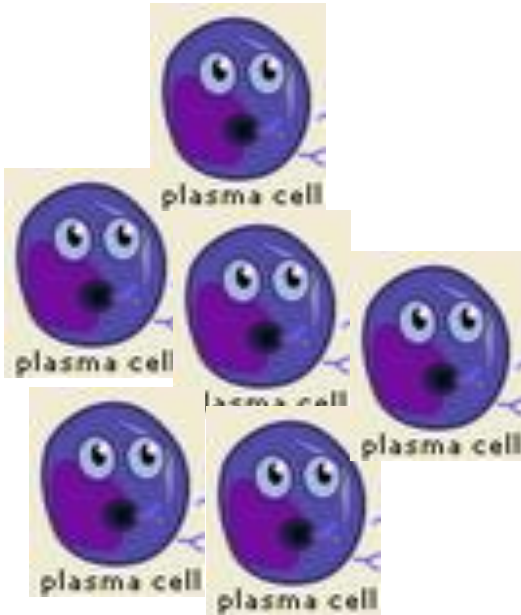
Infection



Infection cleared



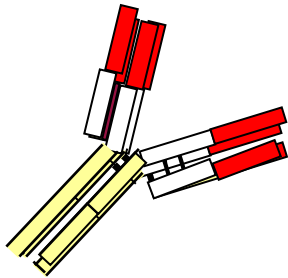
Myeloma is a cancer of plasma cells



- **Myeloma = too many plasma cells**
- Each myeloma cell (clone) makes and releases one type of antibody (gamma globulin) into the circulation (monoclonal gammopathy)

Plasma Cells Produce Antibodies

Antibodies Are Made Up Of Heavy Chains And Light Chains

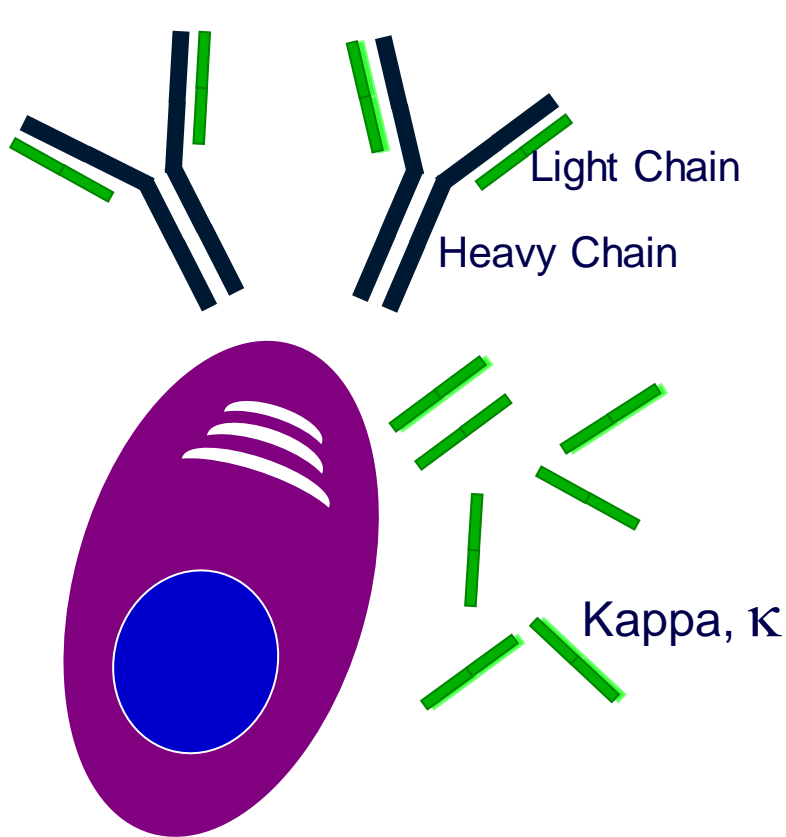


**Immunoglobulin
(Antibody)**

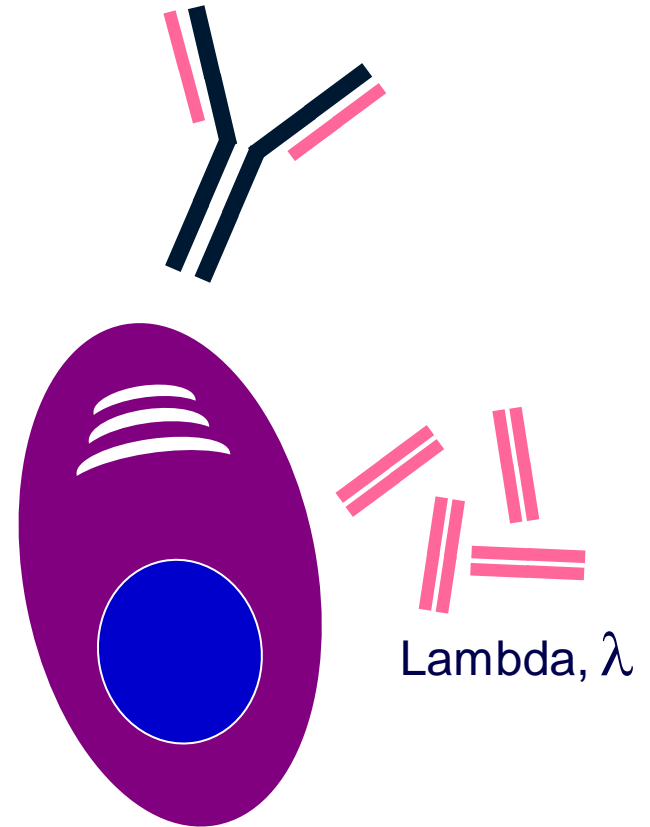
Light Chains

Heavy Chains

Plasma Cells produce Antibodies and Free Light Chains



Kappa releasing



Lambda releasing

Normal Ranges for Serum Free Light Chains

<u>Units (mg/L)</u>	<u>Units (mg/dL)</u>
Kappa: 3.3–19.4 mg/L	Kappa: 0.33–1.94 mg/dL
Lambda: 5.7–26.3 mg/L	Lambda: 0.57–2.63 mg/dL
κ/λ ratio: 0.26–1.65	κ/λ ratio: 0.26–1.65

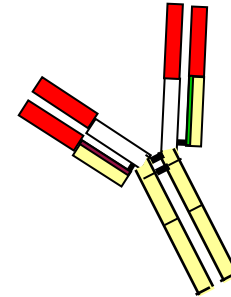
Laboratory Tests That Measure Whole Antibodies (intact immunoglobulins)

Serum Protein Electrophoresis (SPE, SPEP)

Immunofixation (IFE)

Total Immunoglobulins (IgG, IgA, IgM etc.)

(*New – Hevylite)



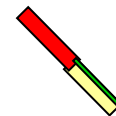
Laboratory Tests That Measure free (unbound) light chains

Serum Free Light Chain Assays

*Urines (UPE, UIFE)



Lambda
Light Chain

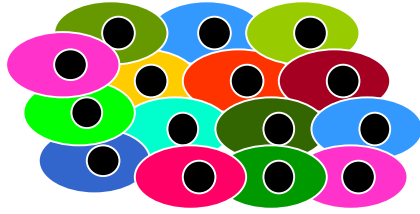


Kappa
Light Chain

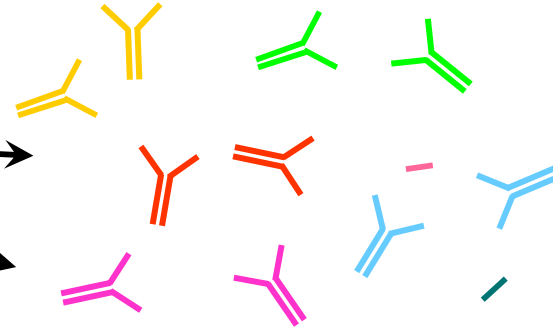
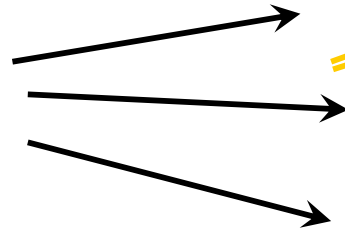
Measured by Freelite

Normal vs Myeloma

IgG κ
IgG L
IgA κ
IgA L
IgD κ
IgD L
IgE κ
IgE L
IgM κ
IgM L



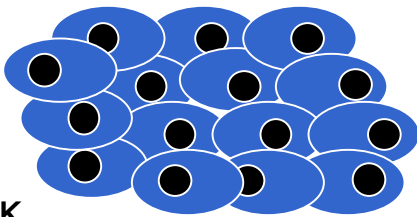
Normal



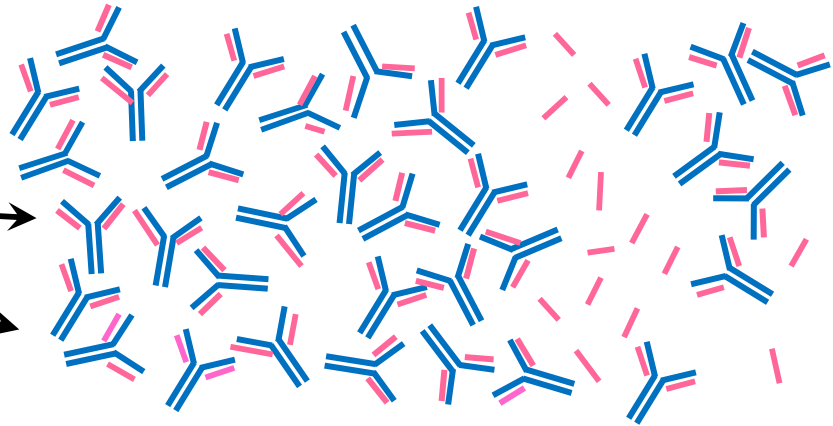
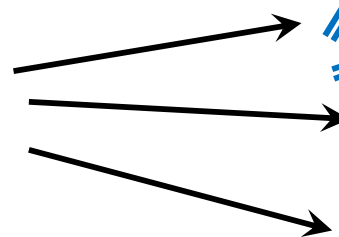
Lots of different types of whole antibodies

IgG κ
IgG L
IgA κ
IgA L
IgD κ
IgD L
IgE κ
IgE L
IgM κ
IgM L

IgG κ

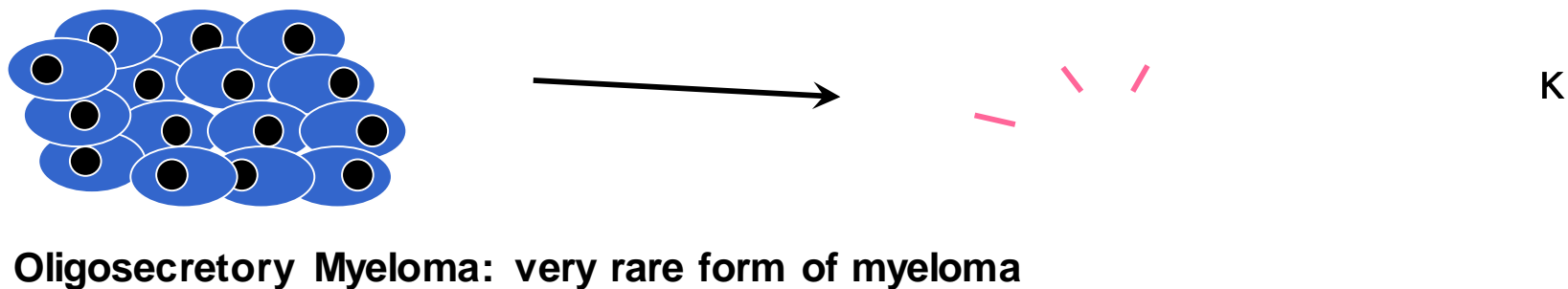
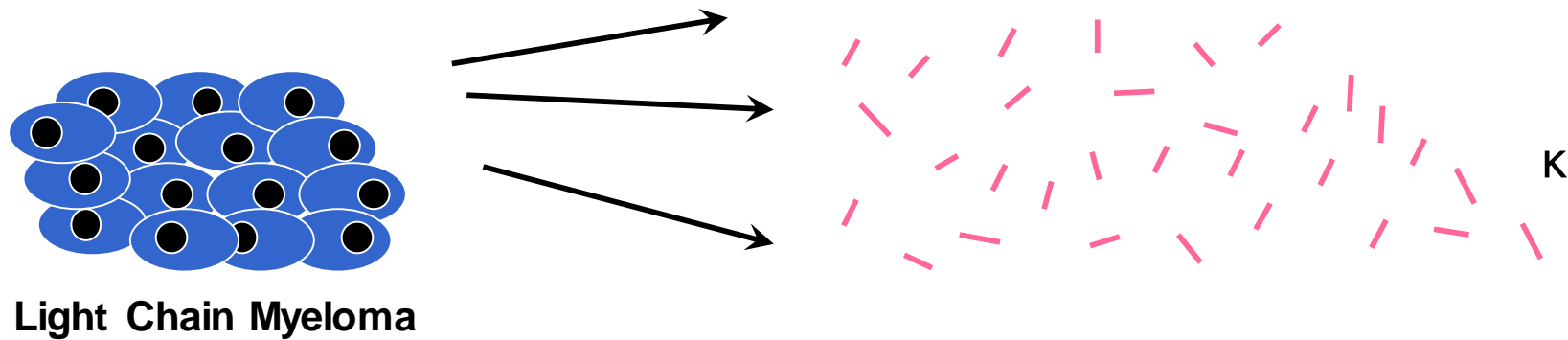
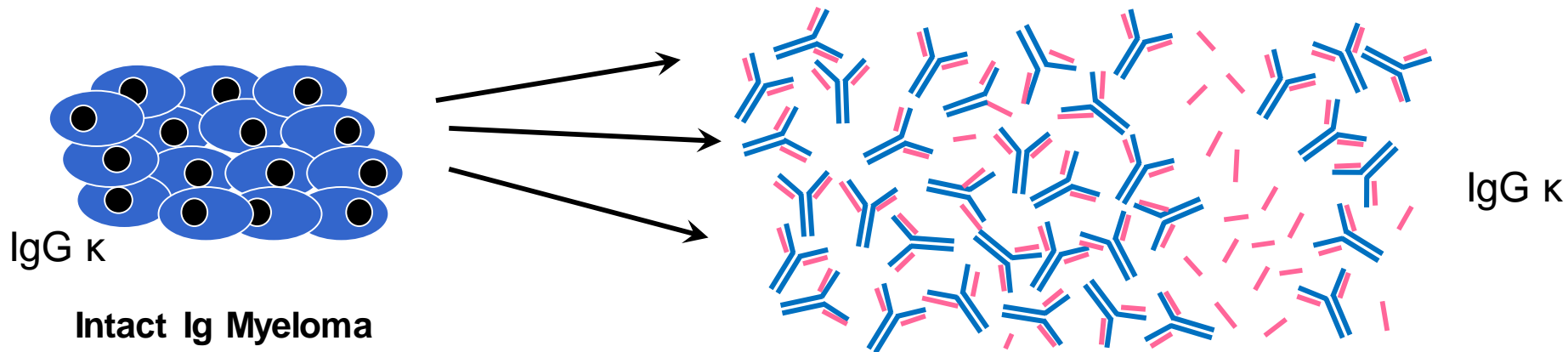


Intact Ig Myeloma

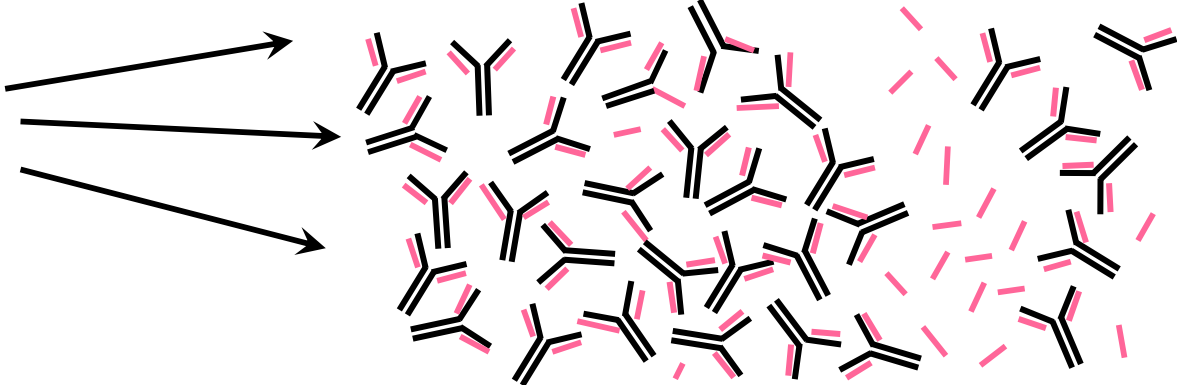
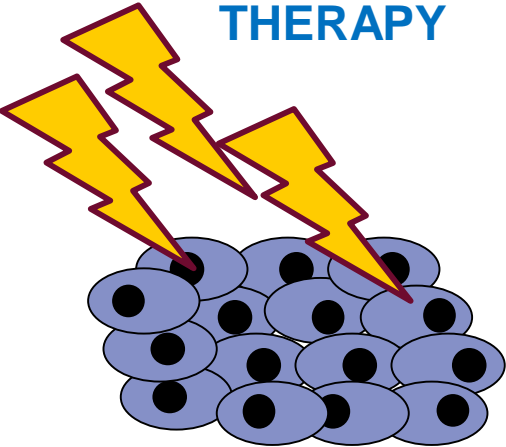


Whole Ab and excess light chains
– and too many of both!

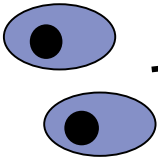
IgG κ



Myeloma Therapy



**KILLS MYELOMA
CELLS**

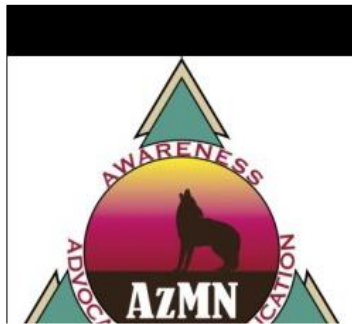


**FEWER MYELOMA
CELLS = LESS
ANTIBODIES AND
LIGHT CHAINS**

MYELOMA
AWARENESS MONTH



March is Myeloma Action Month



Questions?

(Come to **Workshop #4**, 3:00- 4:00 pm)



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