

Eczema (Dermatitis)

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Eczema (Dermatitis)

- The word eczema derived from the Greek word **ekzein** meaning to "boil out" describing the acute stage of eczema which characterized by vesiculation and oozing.
- The term eczema and dermatitis are used interchangeably, denoting a distinctive polymorphic inflammatory eruption with a wide range of clinical finding and may be induced by a number of external and internal factors.
- It is essential to recognize that "eczema" is a descriptive term and not a specific diagnosis;
- Because eczema include a group of skin disorders, each one has a characteristic clinical morphology.

Stages of Eczema

Eczema may be acute, sub-acute, or chronic.

1. **Acute eczema:**

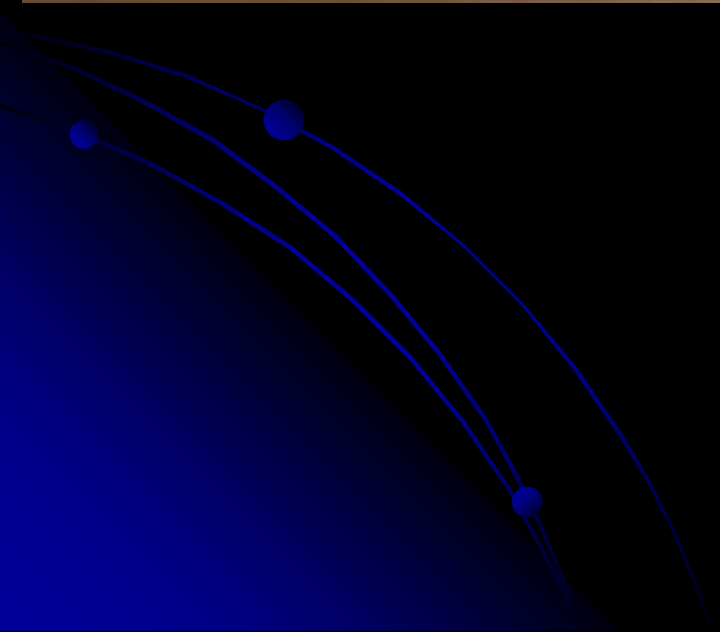
Characterized by erythema, papules, vesicles and oozing

2. **Subacute eczema:**

Characterized by erythema, crusting and scaling.

3. **Chronic eczema:**

Characterized by scaling, lichenification and excoriations.



Classification of Eczema

Depending on the causative factor, eczema is classified into endogenous & exogenous eczema

Exogenous Eczema	Endogenous Eczema
<p data-bbox="251 885 743 935">Contact Dermatitis</p> <ol data-bbox="231 956 830 1071" style="list-style-type: none"><li data-bbox="231 956 830 1006">1. Irritant contact dermatitis<li data-bbox="231 1021 830 1071">2. Allergic contact dermatitis <p data-bbox="106 1085 434 1192">Napkin dermatitis</p>	<p data-bbox="1081 821 1458 871">Atopic dermatitis</p> <p data-bbox="1081 885 1574 935">Seborrhoeic dermatitis</p> <p data-bbox="1081 949 1429 999">Discoid eczema</p> <p data-bbox="1081 1013 1477 1063">Asteatotic eczema</p> <p data-bbox="1081 1078 1391 1128">Stasis eczema</p> <p data-bbox="1081 1142 1516 1192">Dyshidrotic eczema</p> <p data-bbox="1081 1206 1642 1256">Lichen simplex chronicus</p>

Contact Dermatitis

- Eczematous reaction induced by substances coming into contact with the skin.
- Substances may act as irritants or allergens
- There are two major forms of CD; irritant (ICD) and allergic contact dermatitis (ACD).

Irritant Contact Dermatitis (ICD)

- Quickly, within few hours after exposure to the irritants.
- Irritants includes acids, alkaline, or chemicals.
- Symptoms of ICD include burning rather than itching
- Signs of acute stage include erythema, vesicles, bullae, oozing
- In chronic conditions; Scaling, fissuring, and lichenification.
- The severity of the inflammation is related to the concentration of the irritant and the length of exposure.
- There is sharp demarcation to the area of contact.
- ICD usually lack the dissemination to other body sites.



Irritant contact dermatitis

Allergic Contact Dermatitis (ACD)

Allergic contact dermatitis (ACD) is a cell-mediated immunological reaction (i.e. delayed-type hypersensitivity) induced when an allergen comes into contact with previously sensitized skin.

Pathogenesis of ACD:

- The allergens (antigen) that are capable for induction of allergic contact dermatitis are usually low molecular-weight substances (haptens) that readily penetrate the skin;
- The subsequent cell mediated immunological reaction is divided into two sequential phases:
 1. Initial sensitization phase (afferent phase).
 2. Elicitation phase (efferent phase).

The Afferent Phase (sensitization)

Hapten



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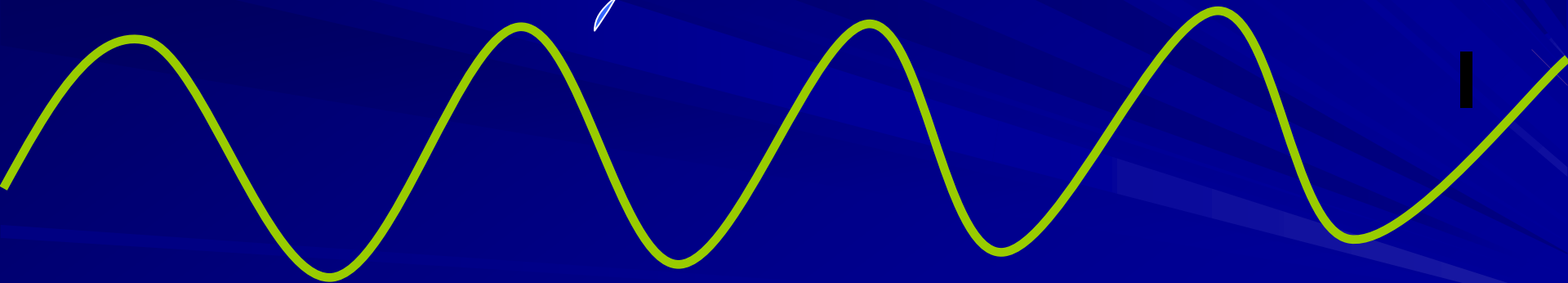
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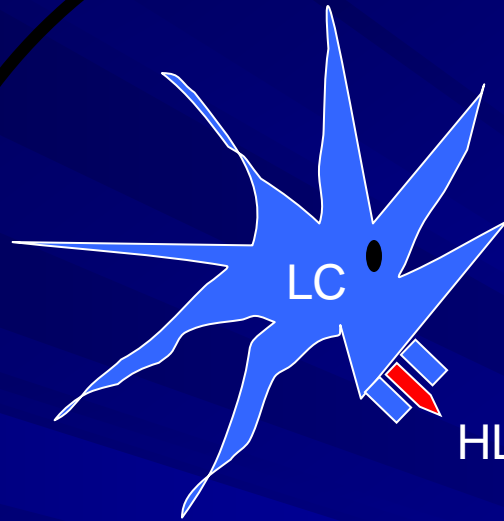


LC

HLA-DR



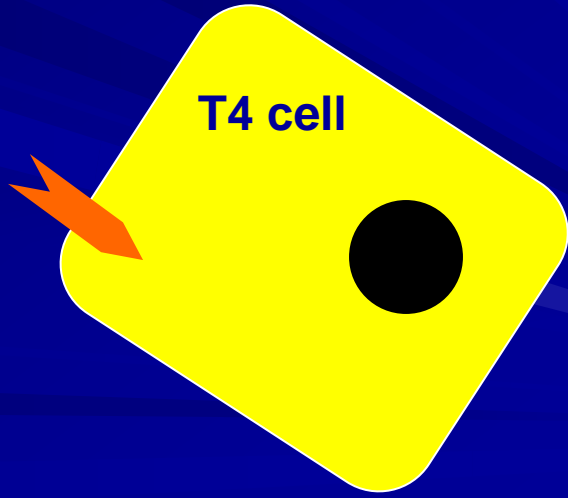
Regional LN



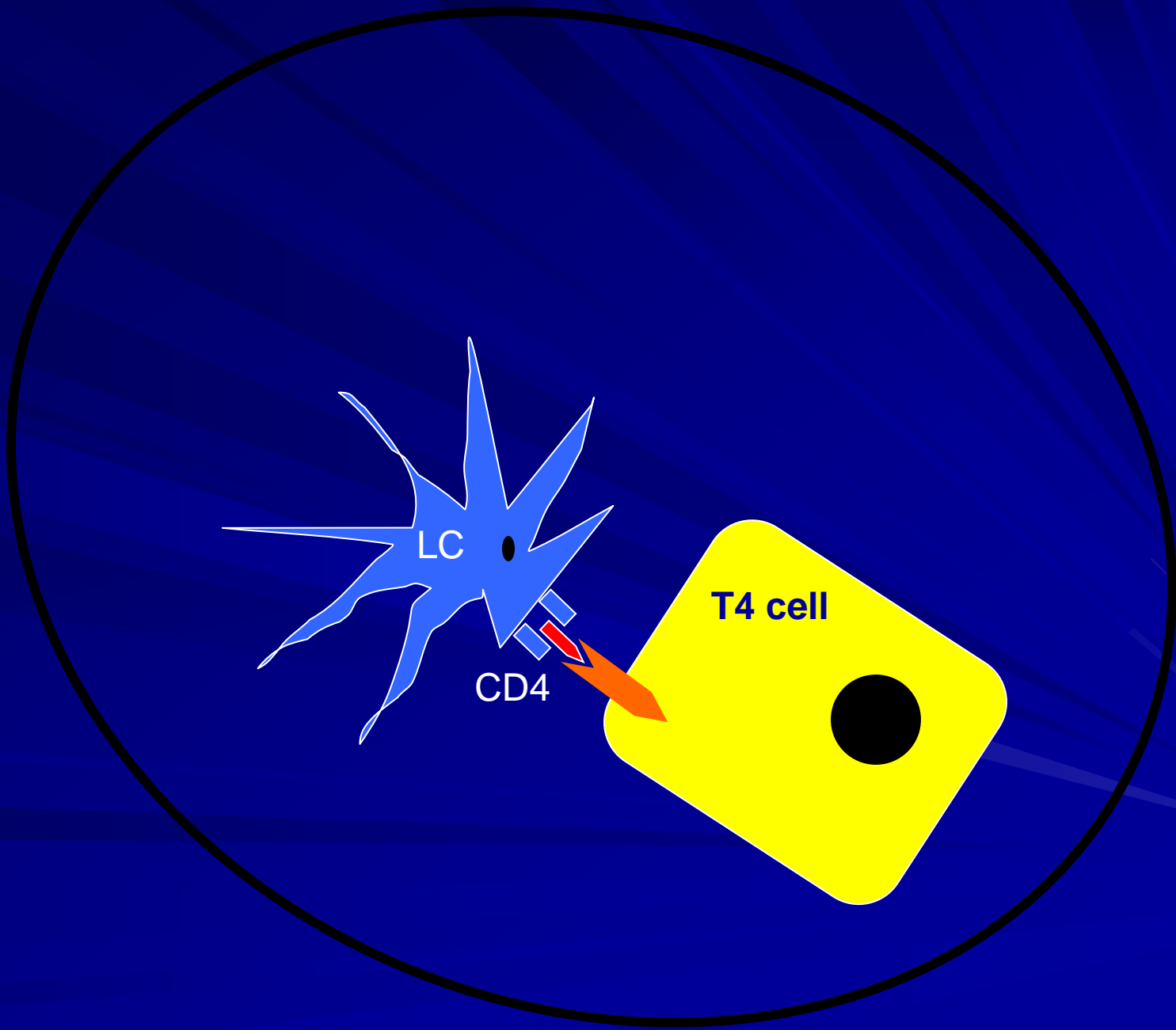
HLA-DR

T4 cell

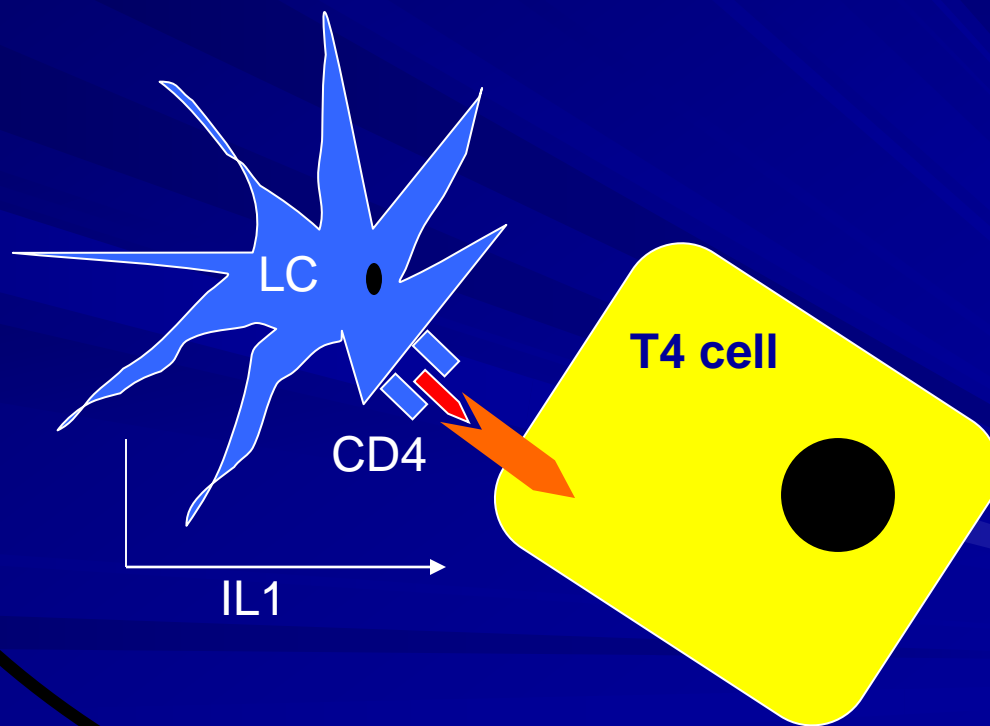
CD4



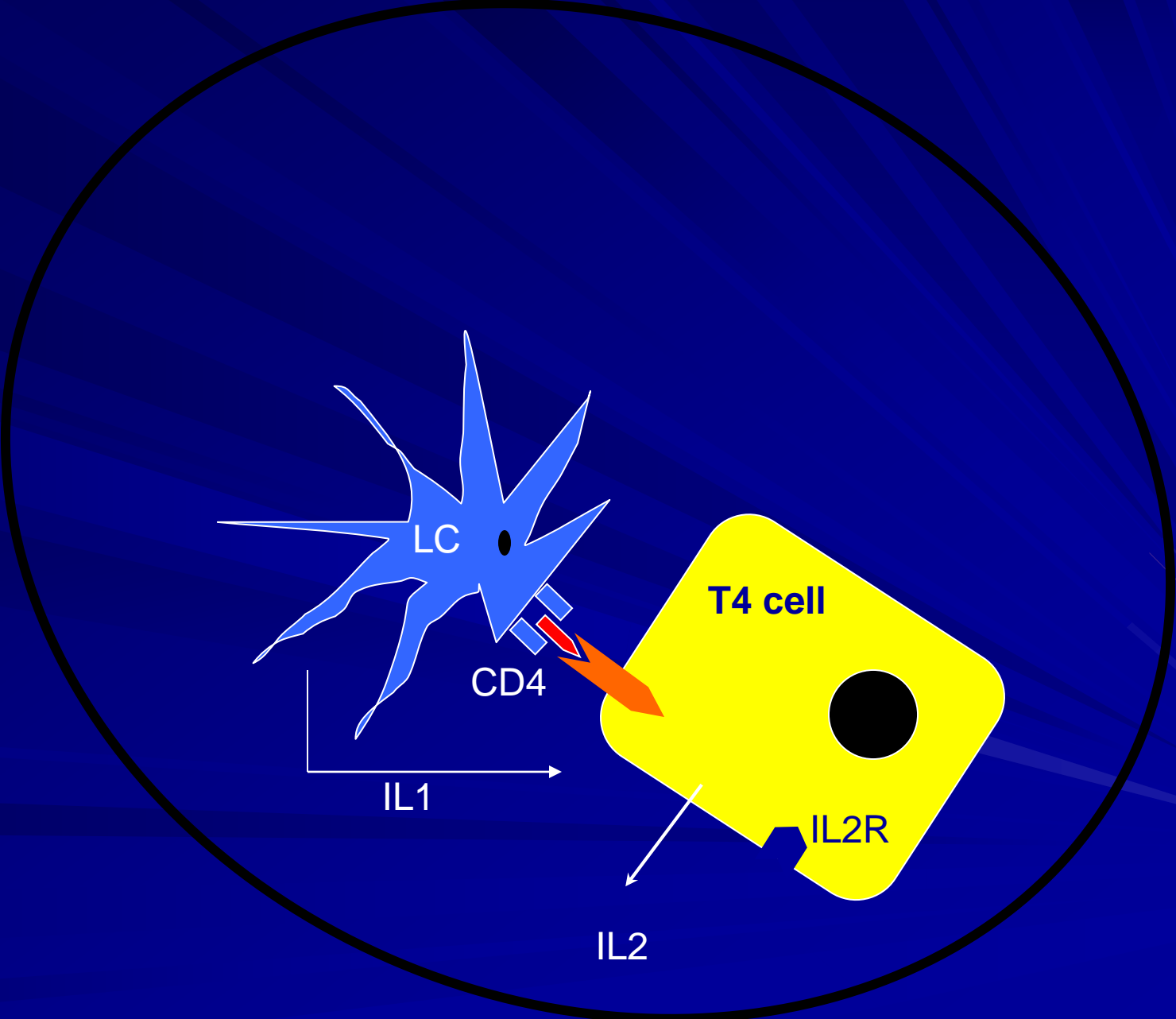
Regional LN



Regional LN



Regional LN



LC

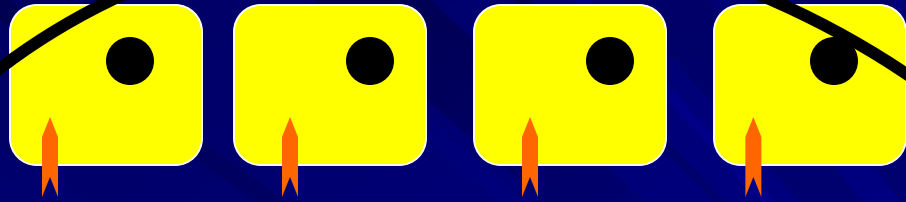
T4 cell

CD4

IL2R

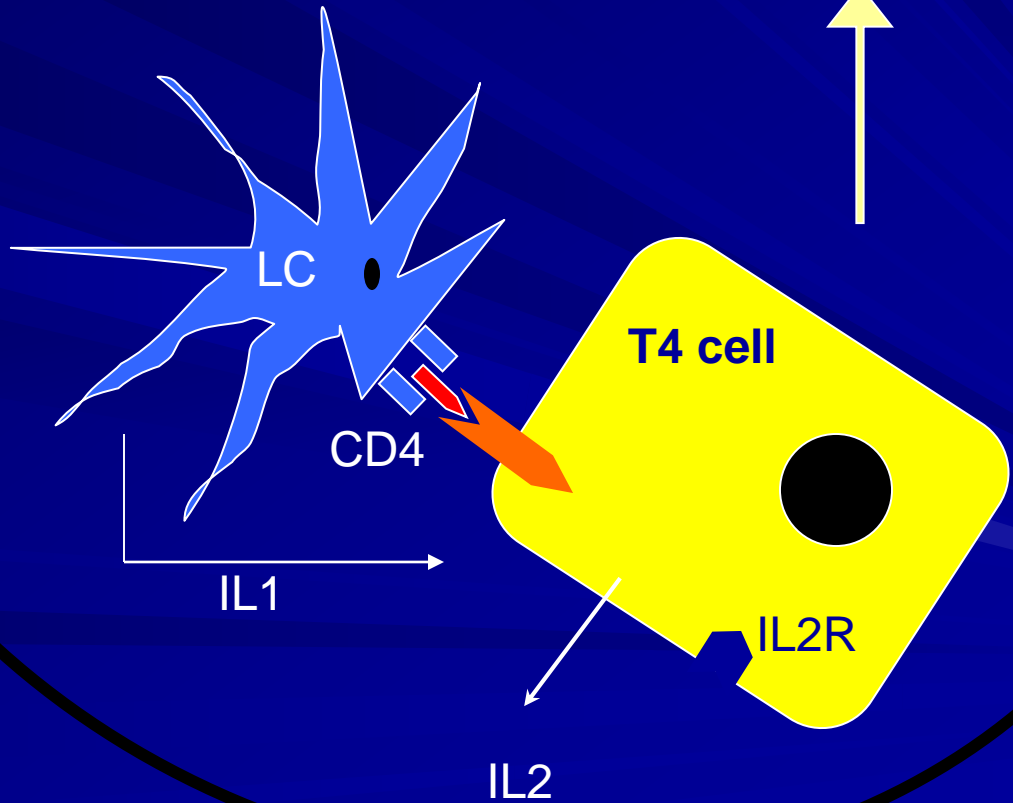
IL1

IL2

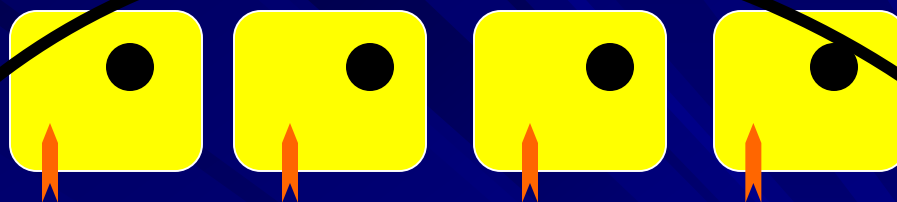


Specific T-cell clone

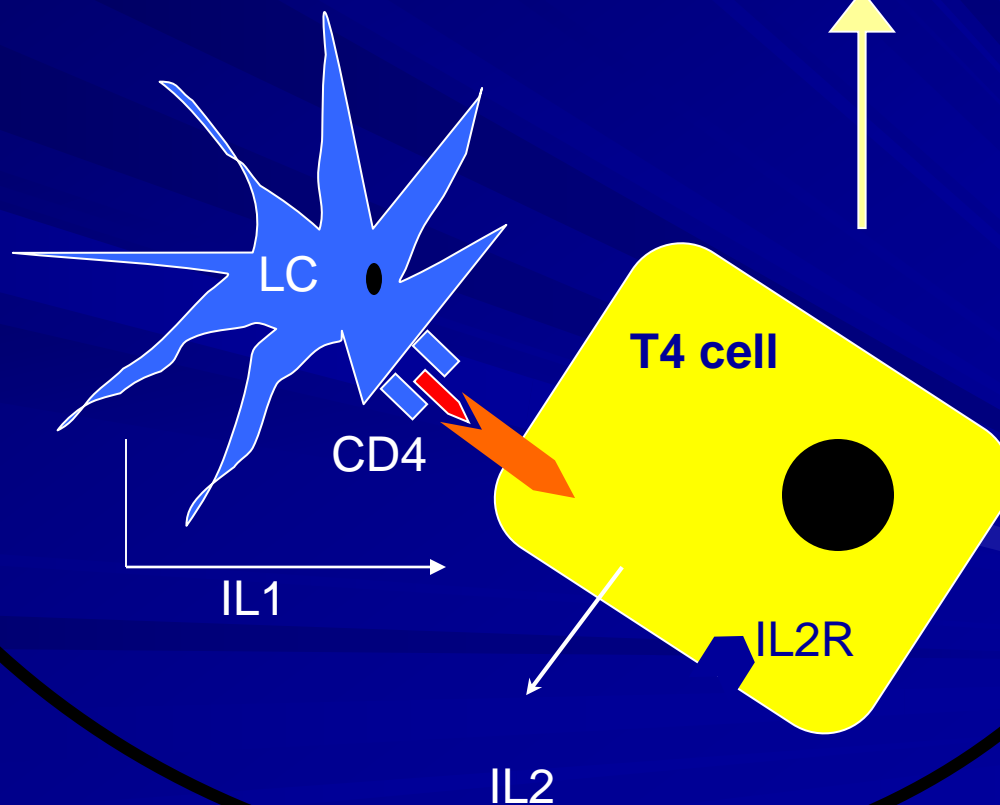
Regional LN

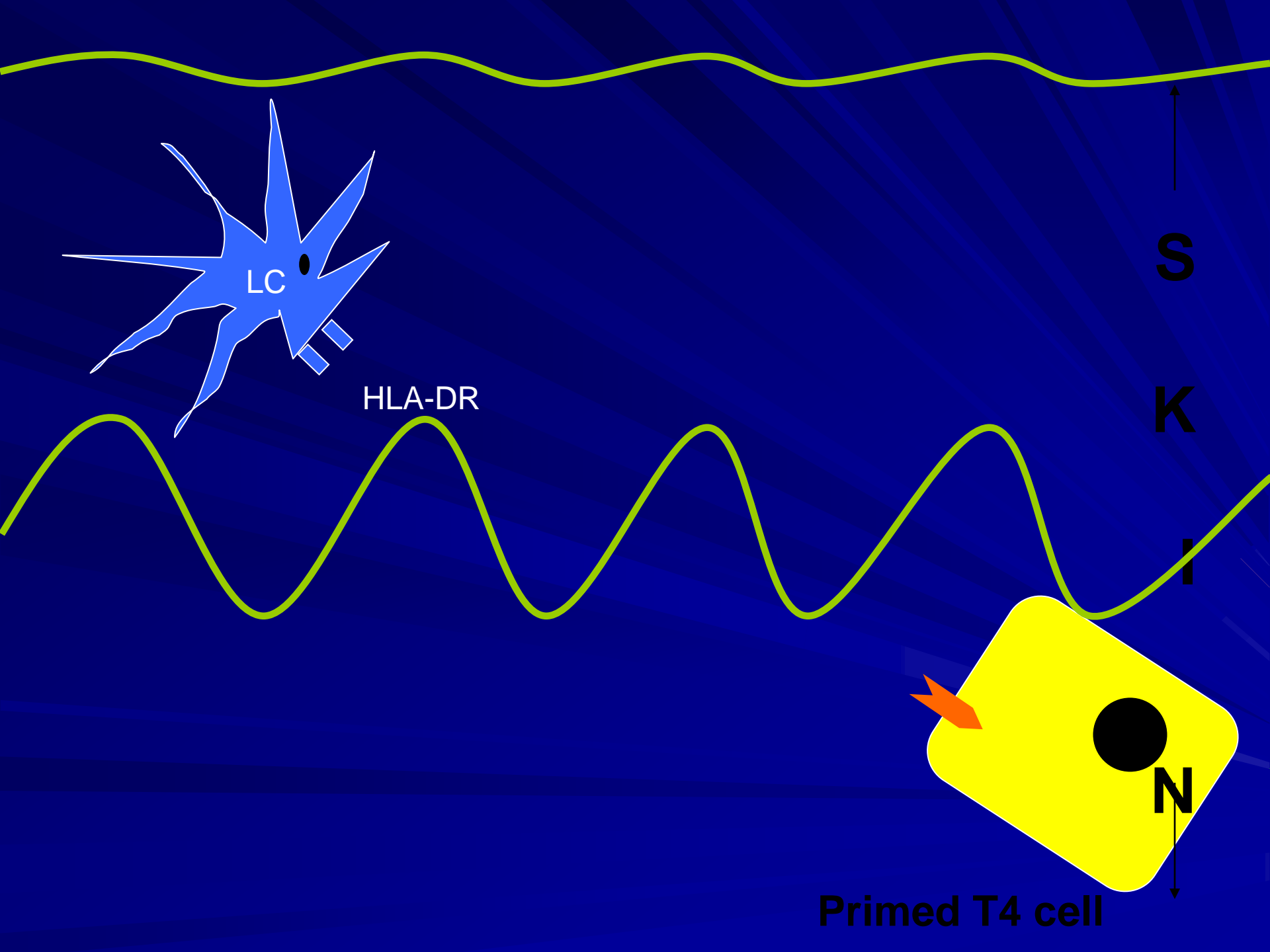


Circulate throughout
the body & back to skin



Specific T-cell clone





LC

HLA-DR

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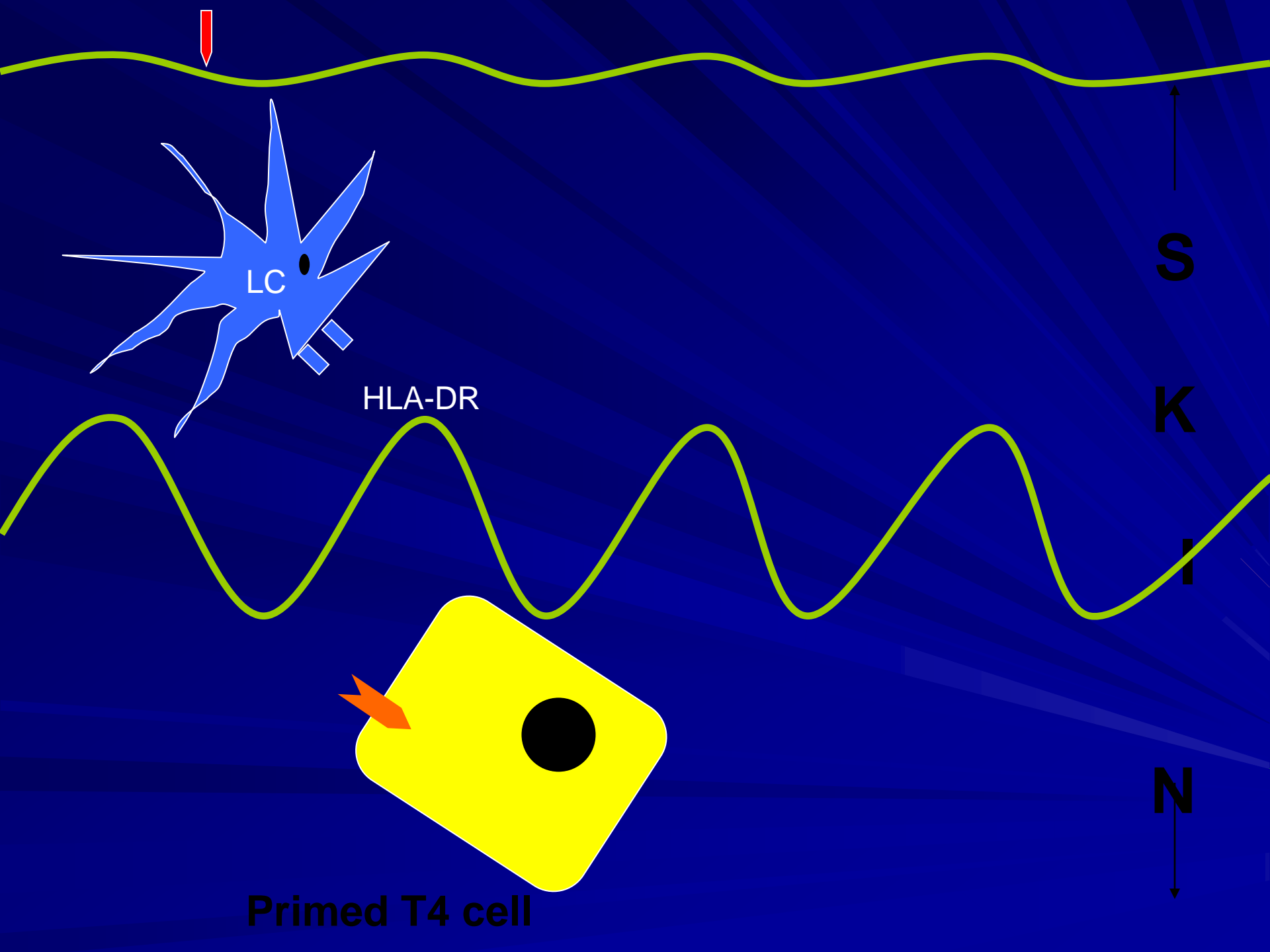
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Primed T4 cell

The Efferent Phase (elicitation)



LC

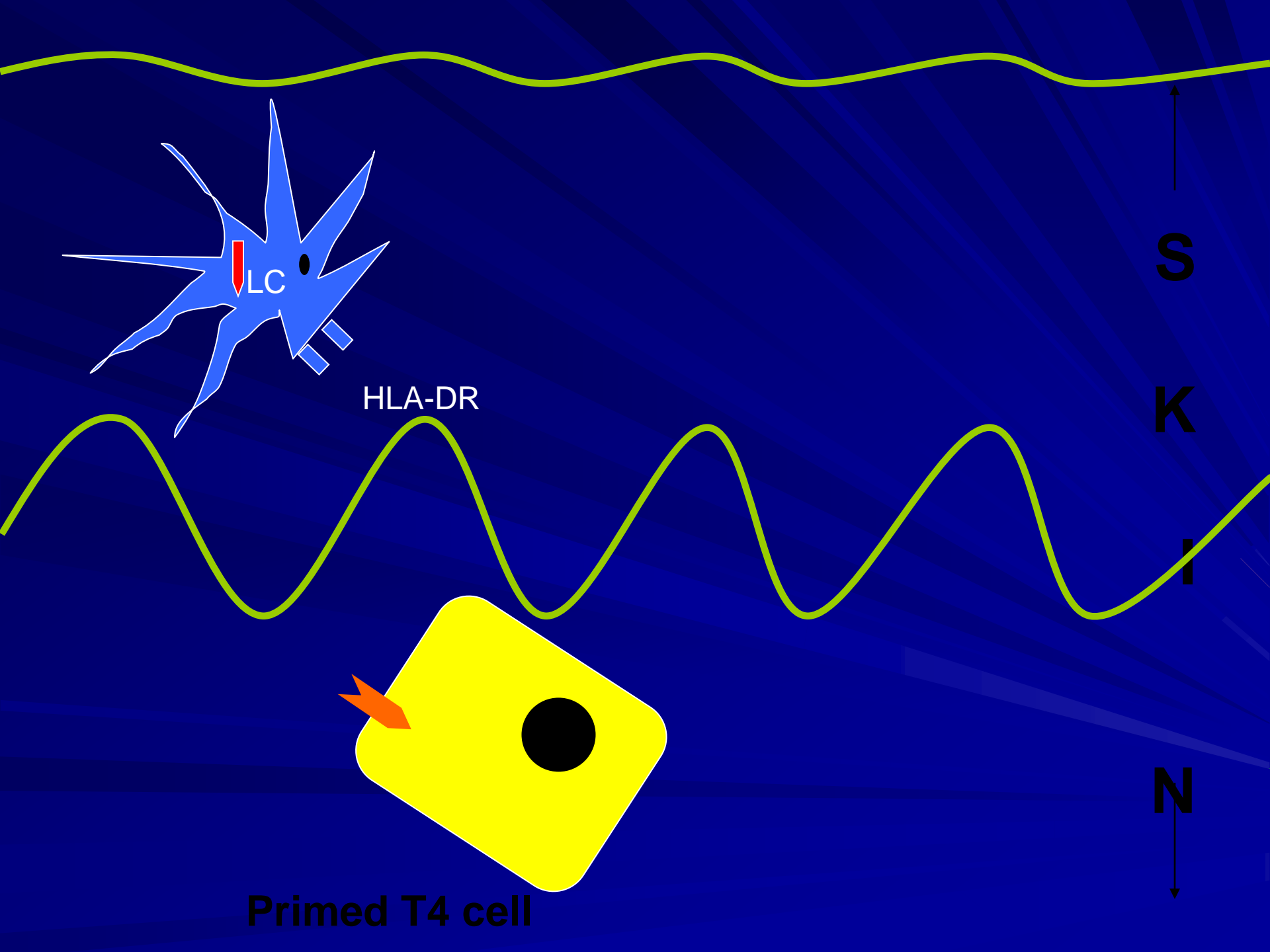
HLA-DR

Primed T4 cell

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LC

HLA-DR

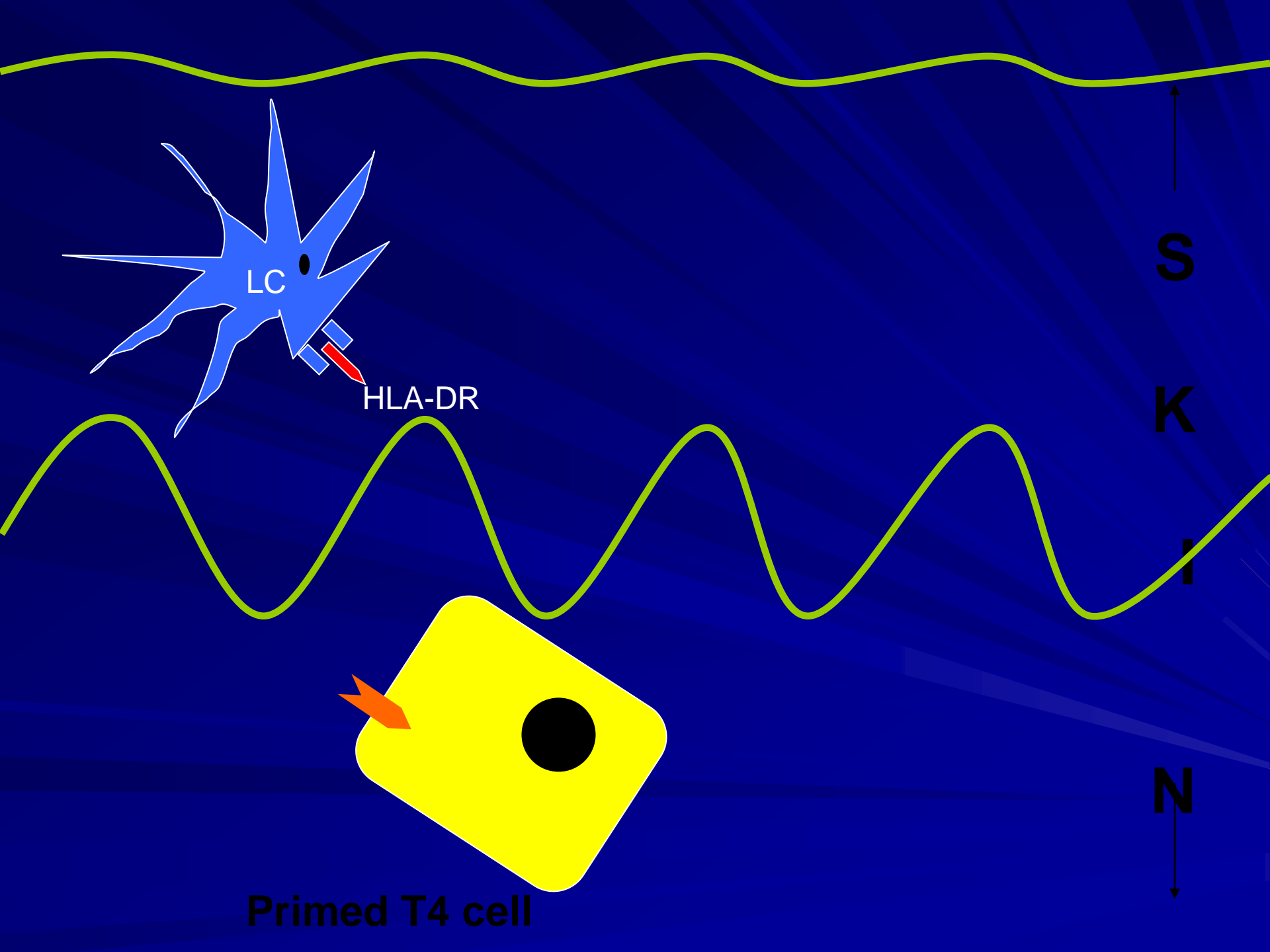
Primed T4 cell

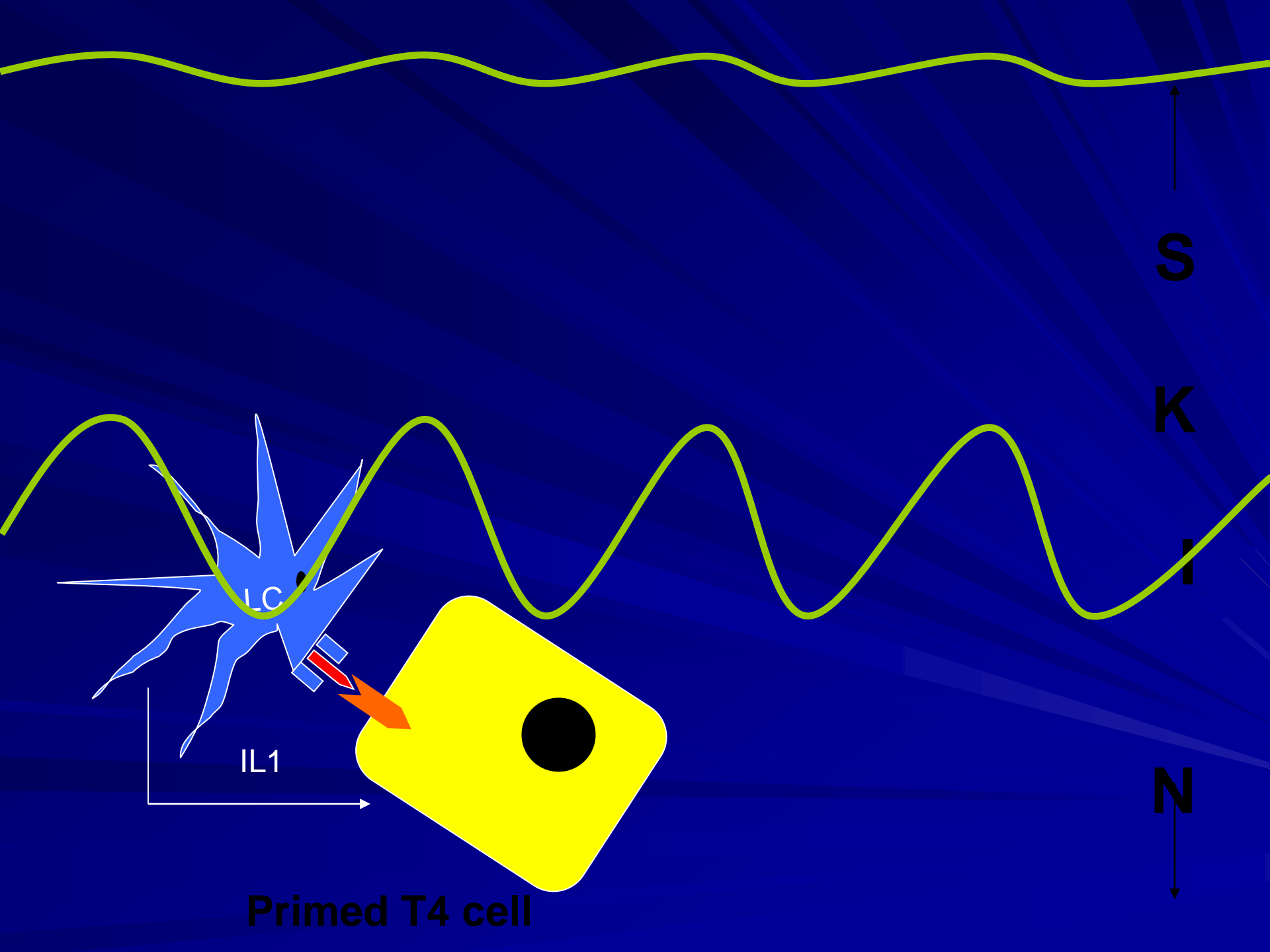
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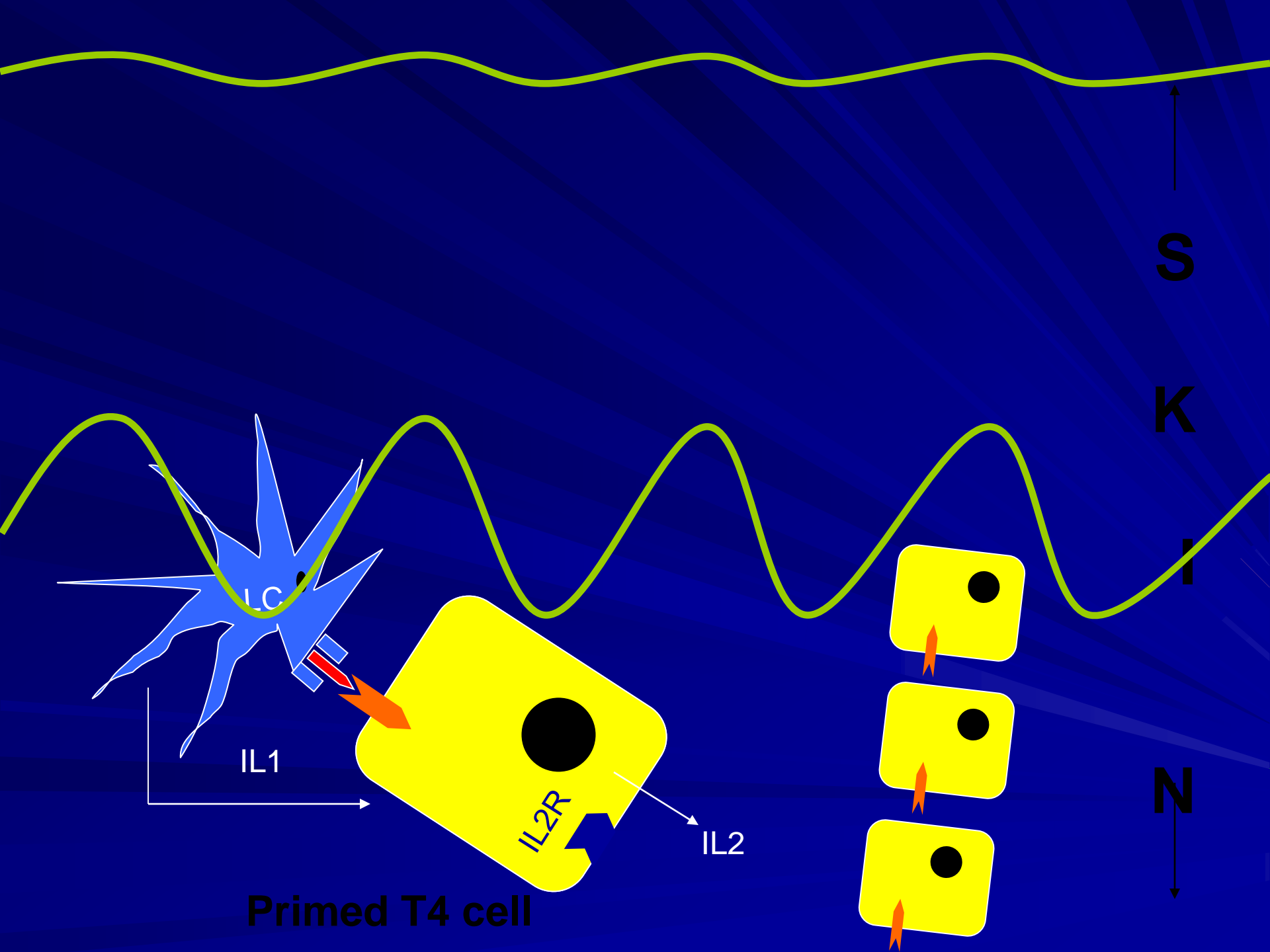
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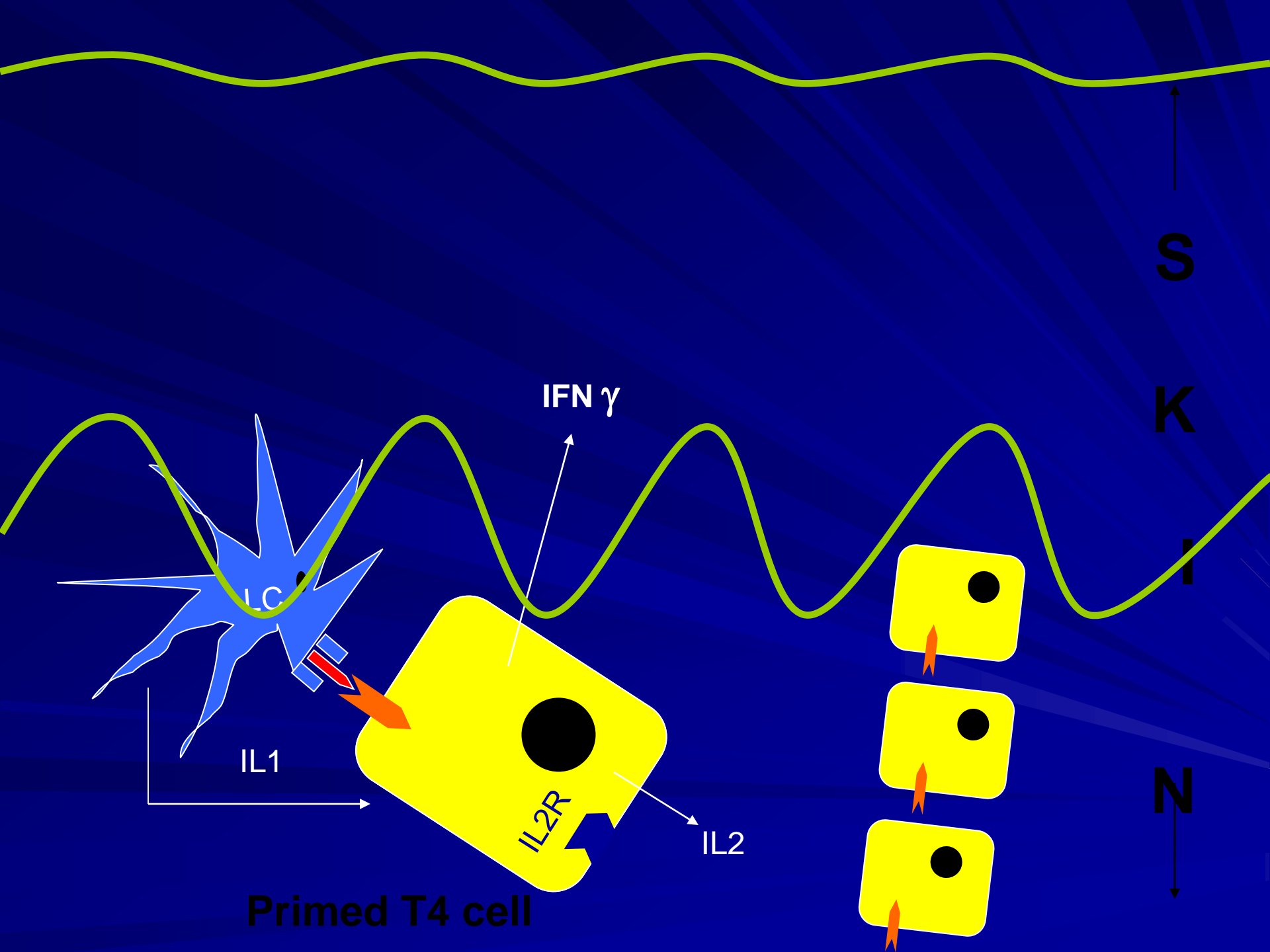
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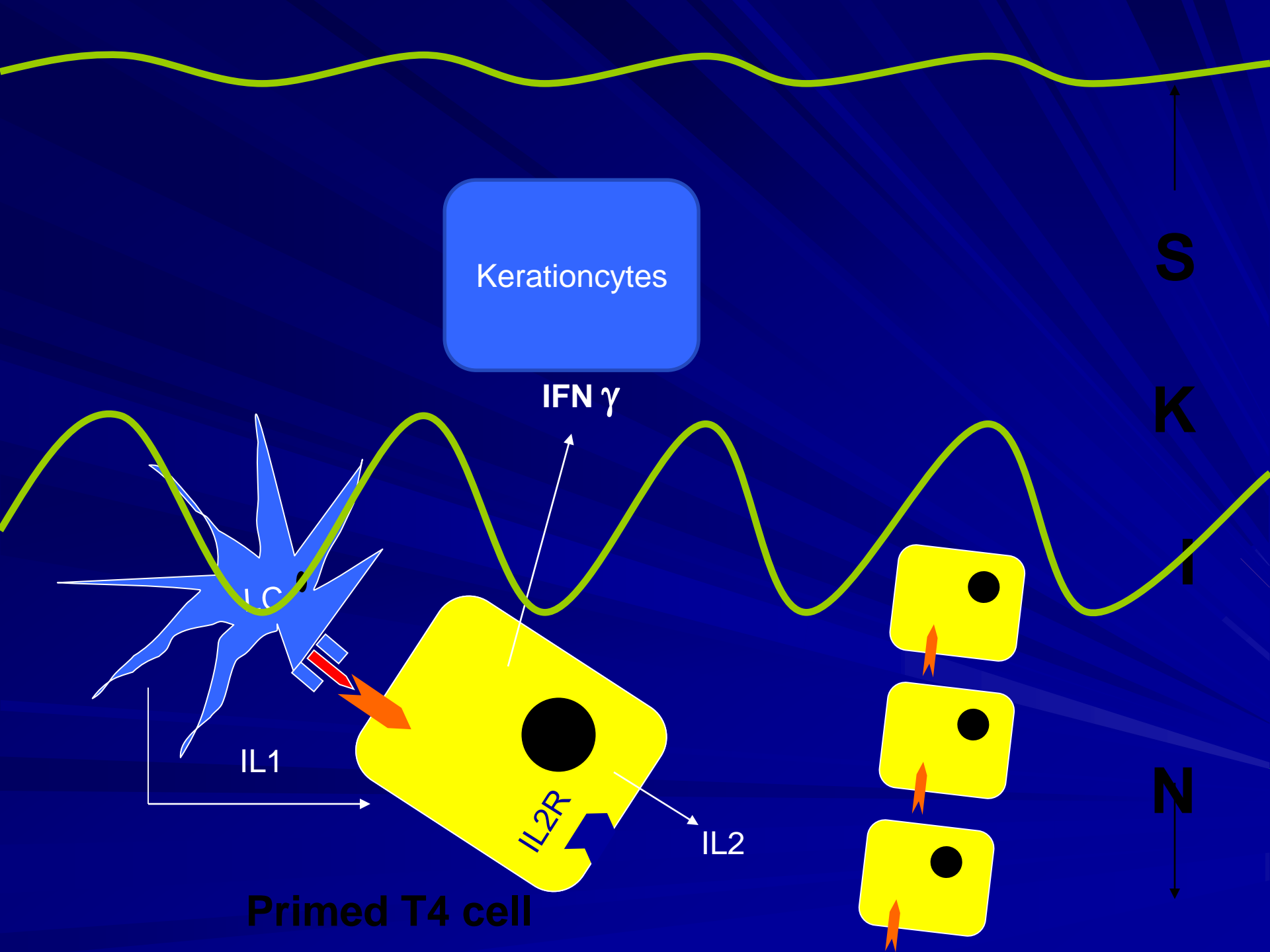
LC

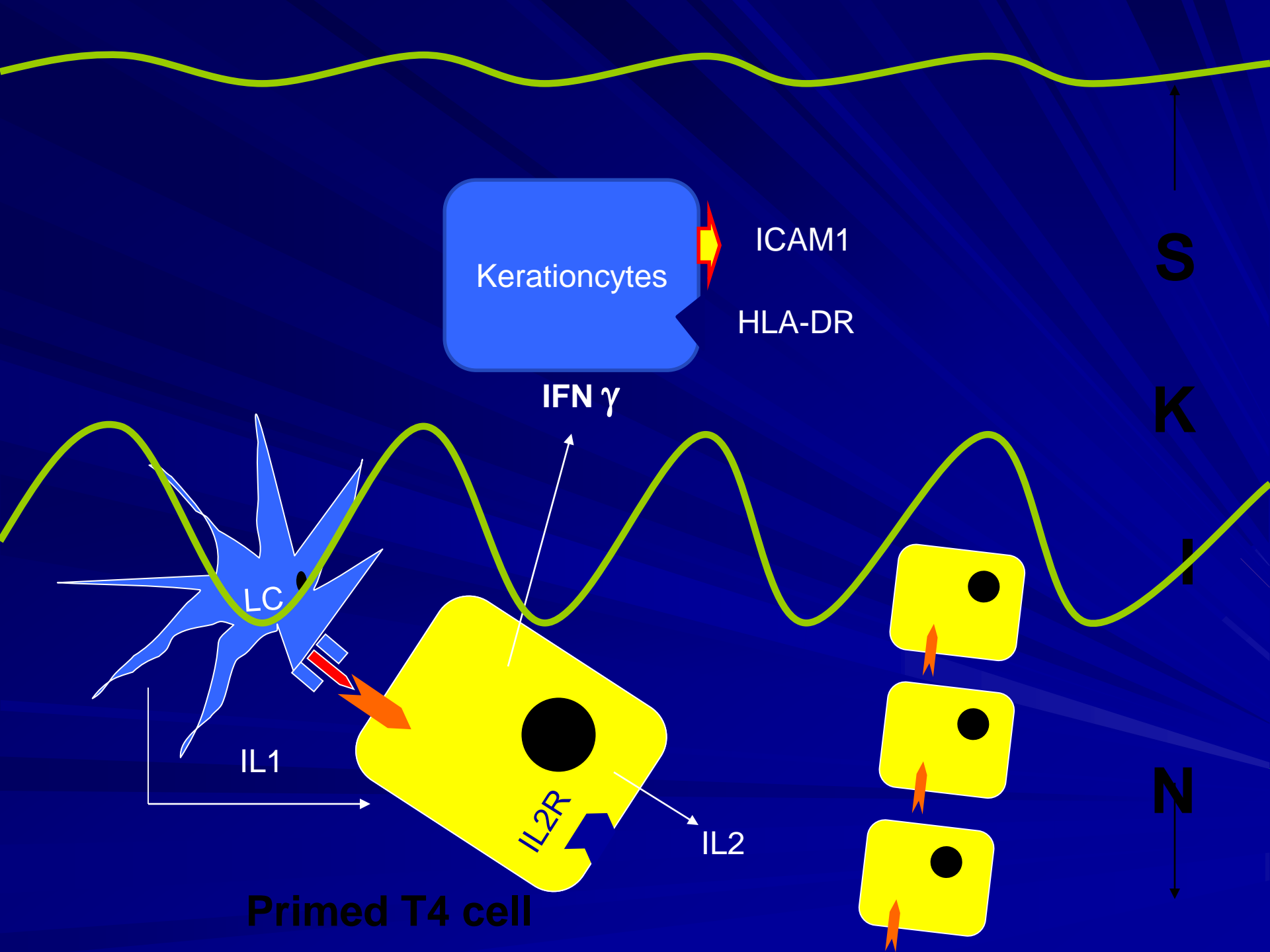
IL1

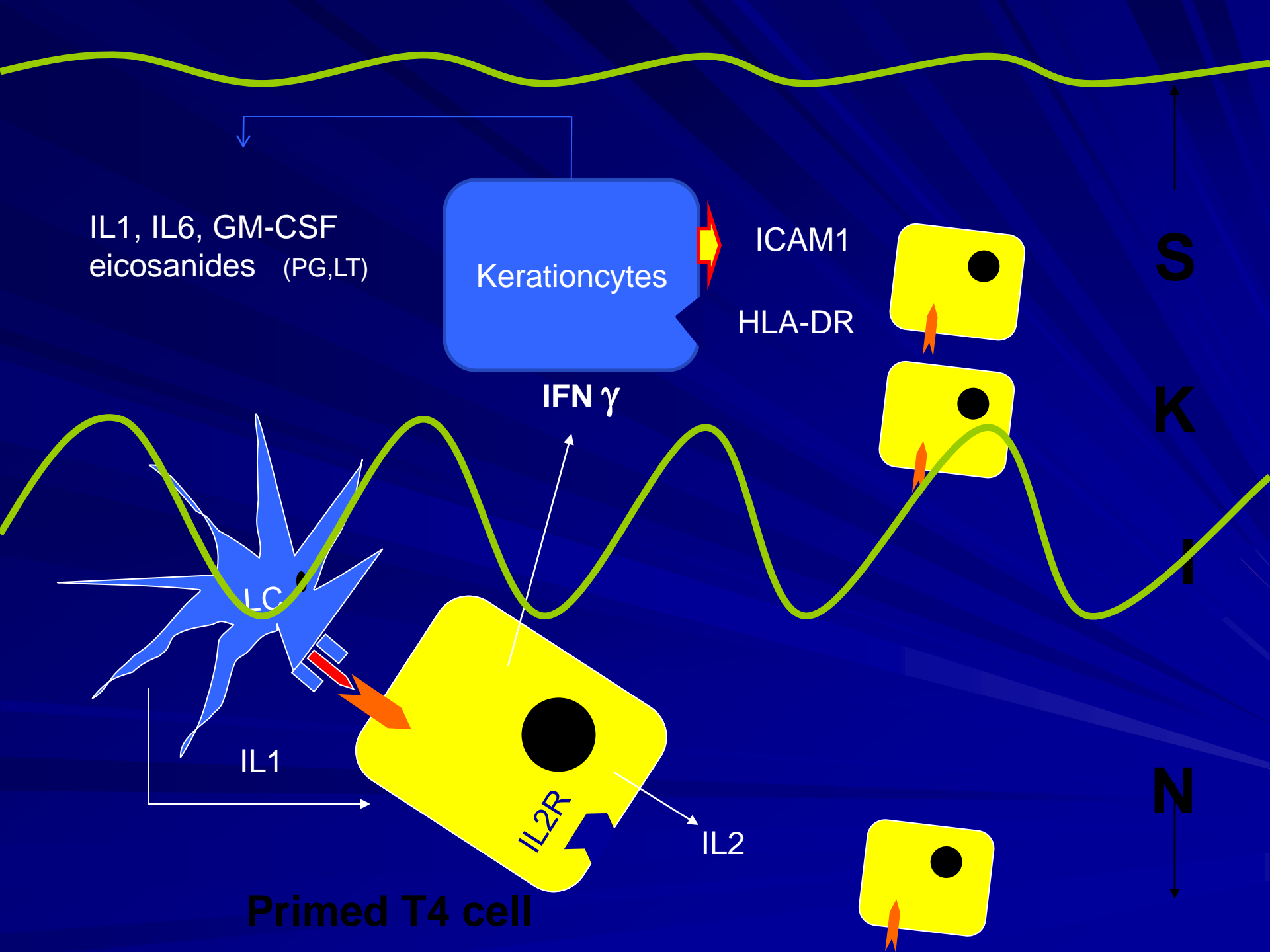
Primed T4 cell











IL1, IL6, GM-CSF
eicosanides (PG,LT)

Keratinocytes

ICAM1

HLA-DR

IFN γ

LC

IL1

IL2R

IL2

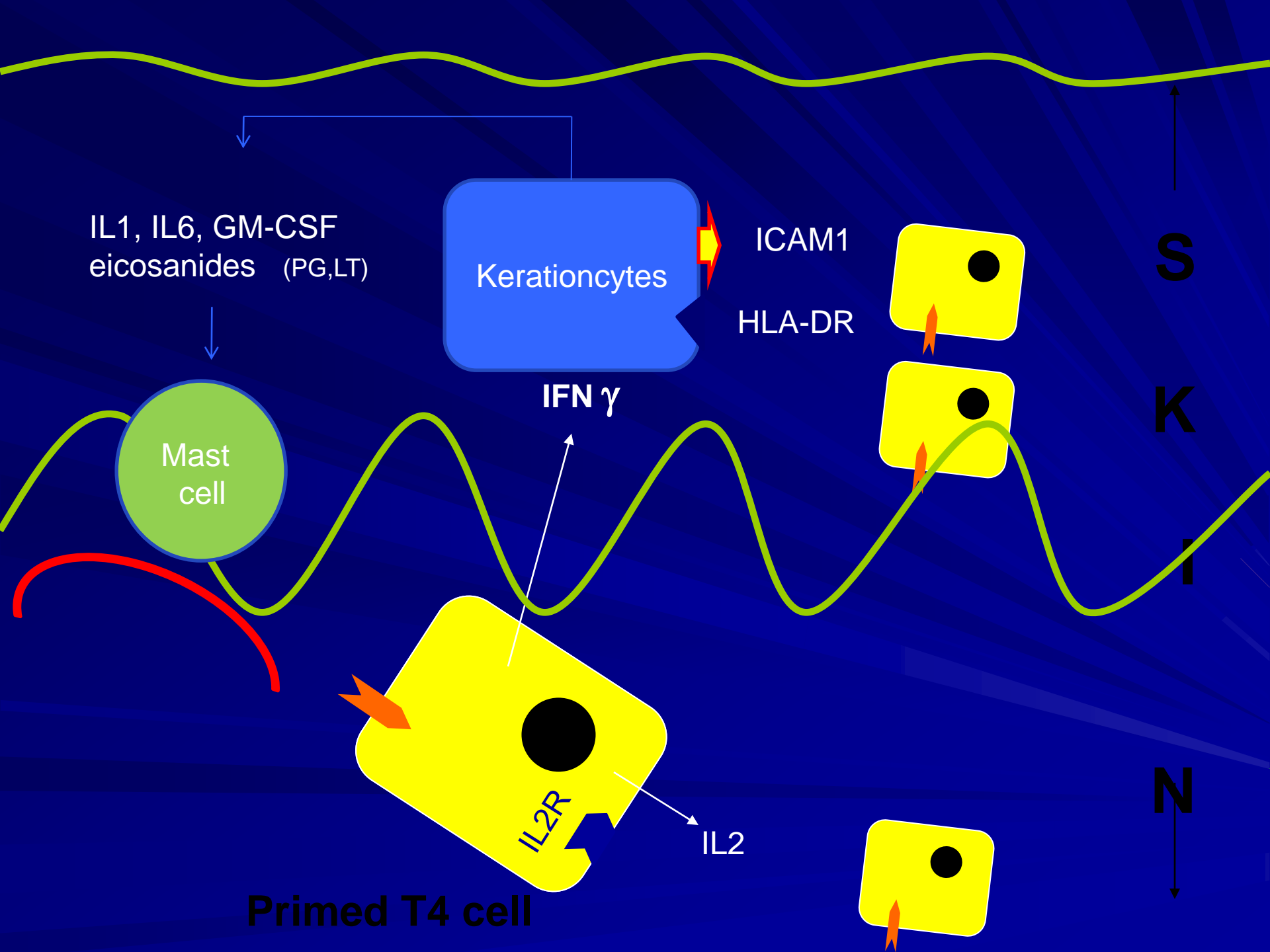
Primed T4 cell

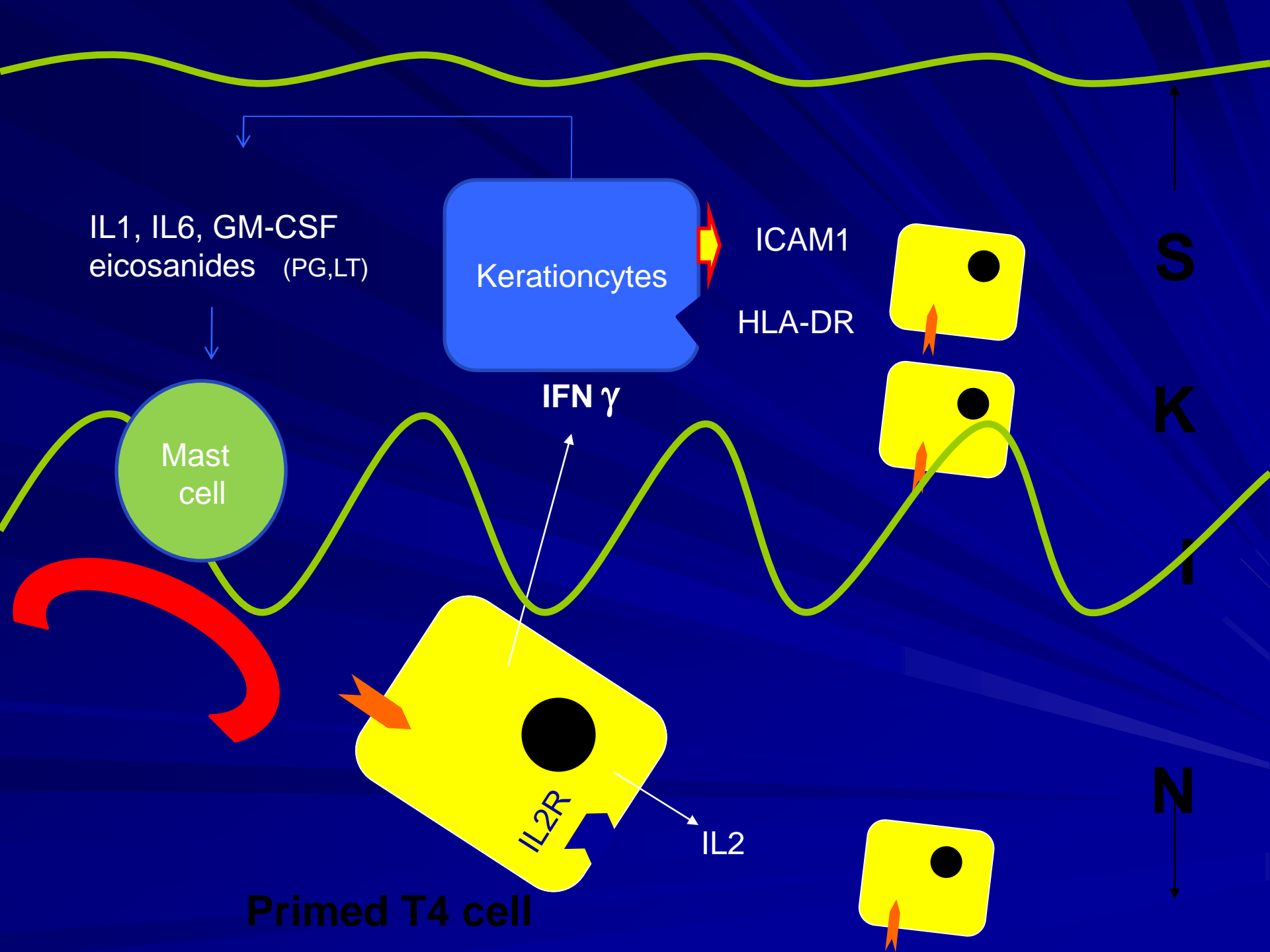
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Clinical features of ACD:

- On the first exposure (sensitization phase) usually there is no skin changes.
- On subsequent exposure (Elicitation phase) the picture is that of acute, subacute, or chronic eczema.
- The clue for diagnosis of ACD is the shape and location of the rash.
- The diagnosis is obvious when the rash is confined to the area under a watch strap, shoe, or waistband



Allergic Contact Dermatitis





Allergic contact dermatitis



Allergic contact dermatitis

Diagnosis of Contact Dermatitis:

- Detailed history and precise examination.
- Patch test is the gold standard in diagnosis of ACD.
- Positive patch test will confirm the diagnosis and identify the causative allergen.
- Negative patch test result will exclude the diagnosis of ACD and support the diagnosis of ICD.

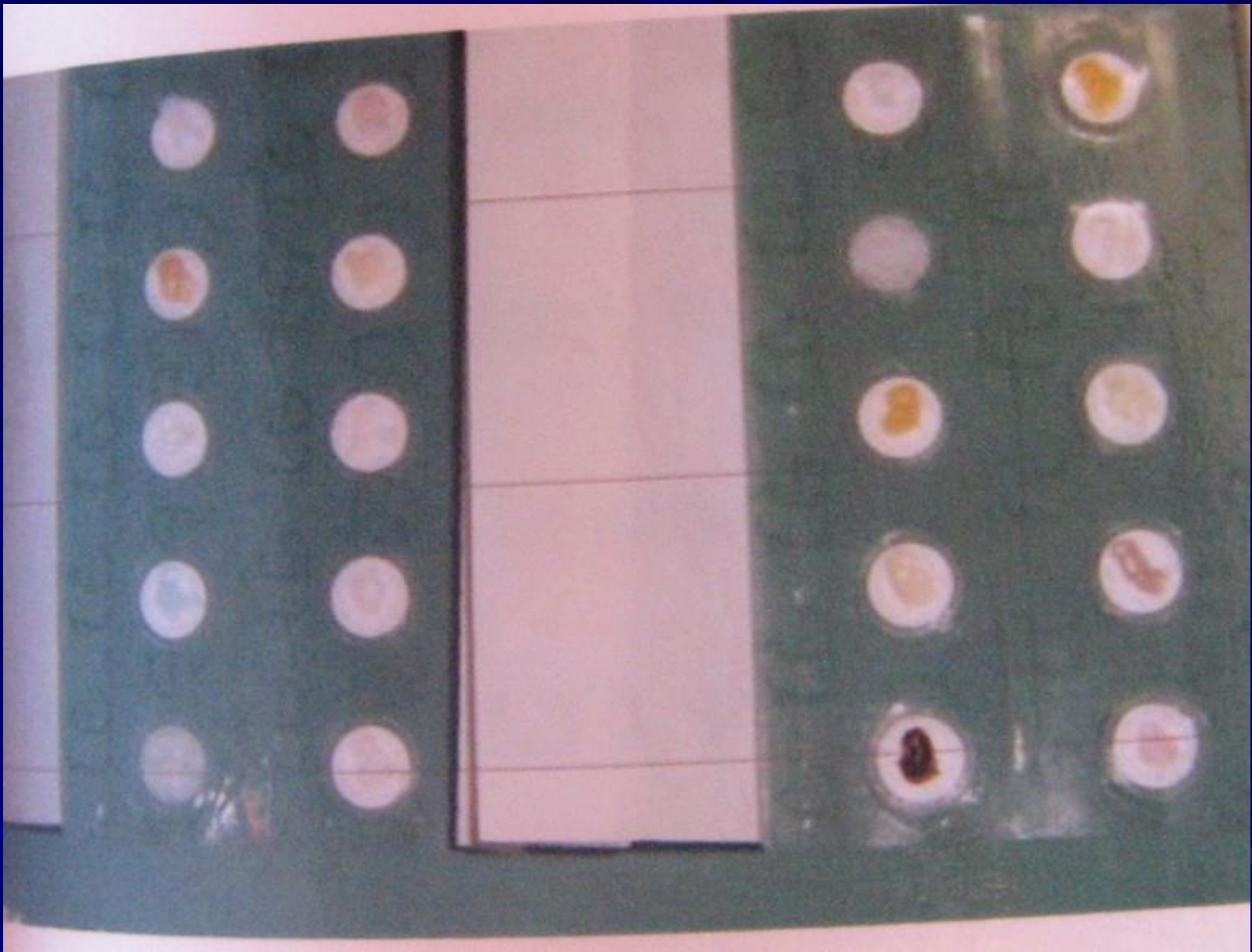
Patch Test

The patch test consists of the allergens and the patches

Patch Test Technique

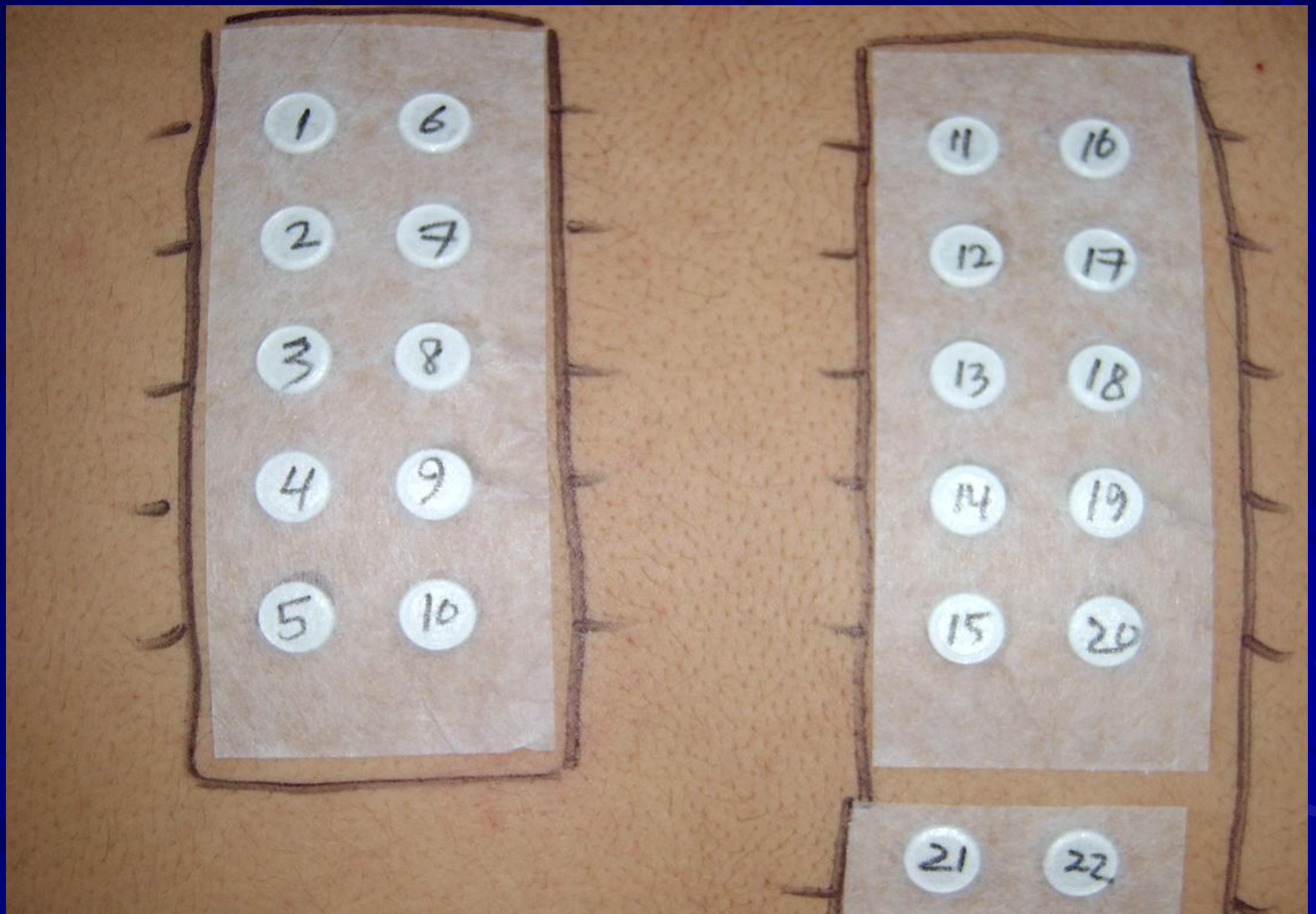
The International Standard Series

No	ALLERGEN	%	1st.	2nd.	Note
1	Potassium dicromate	0.5			
2	Neomycin sulfate	20			
3	Thiuram mix.	1			
4	4-Phenylenediamine base	1			
5	Formaldehyde (aqu.)	1			
6	Colophony	20			
7	Balsam of Peru	25			
8	Wool alcohol	30			
9	Mercapto mix.	1			
10	Epoxy resin	1			
11	Butylphenol Formaldehyde resine	1			
12	Fragrance mix	8			
13	Nickel sulfate	2.5			
14	Mercaptobenzothiazole-2	1			
15	Budesonide	0.01			
16	Quaternium 15	2			
17	Kathon cg,100ppm (aqu.)	0.01			
18	Imidazolidinylurea (aqu.)	2			
19	Tixocortol-21-pivalate	0.1			
20	Methyldibromogltaronitrile	o.1			

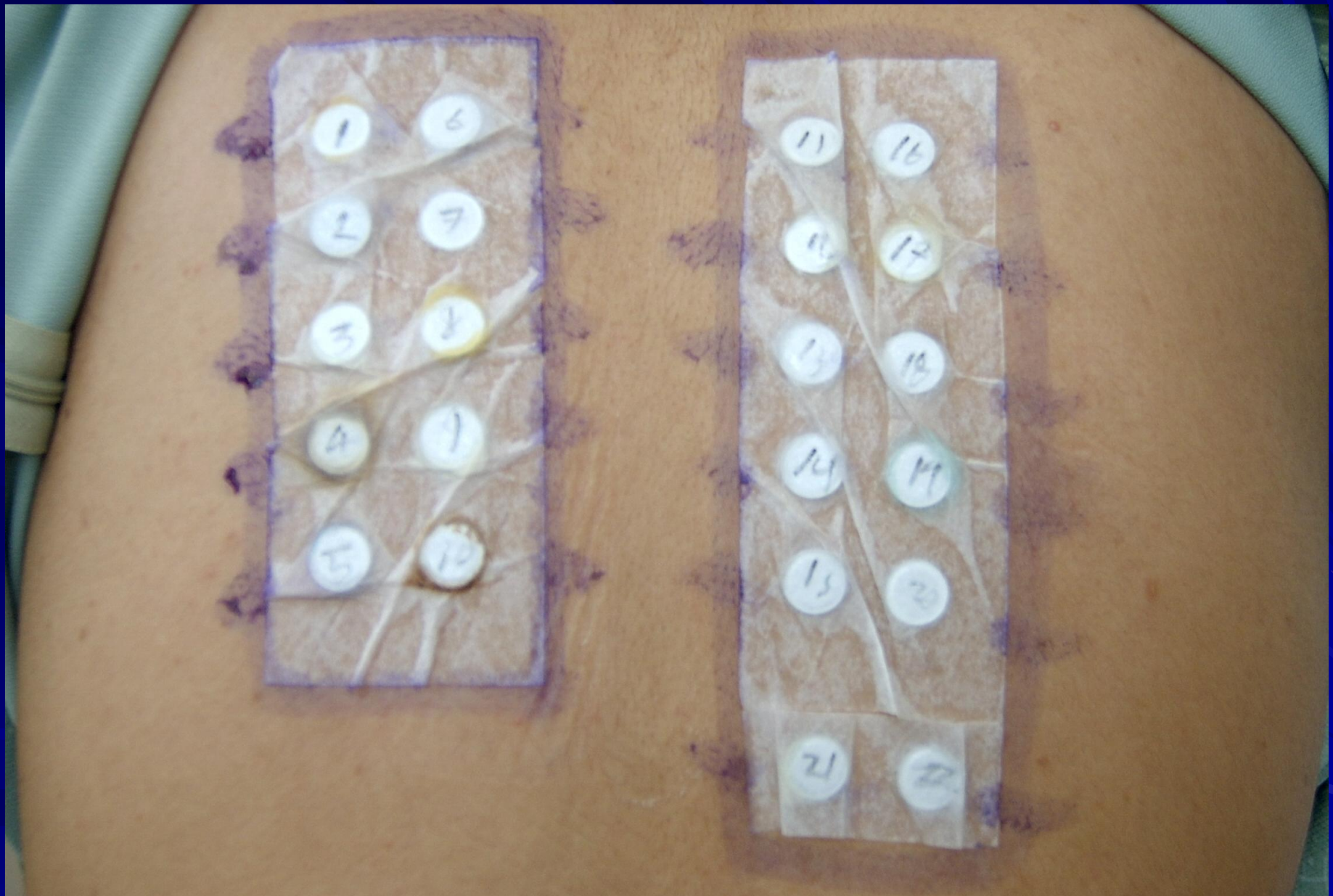


Step 1 : The allergen applied on the patches.

5-mm ribbon of the petrolatum-based allergens
for liquid allergens one drop on filter paper disk



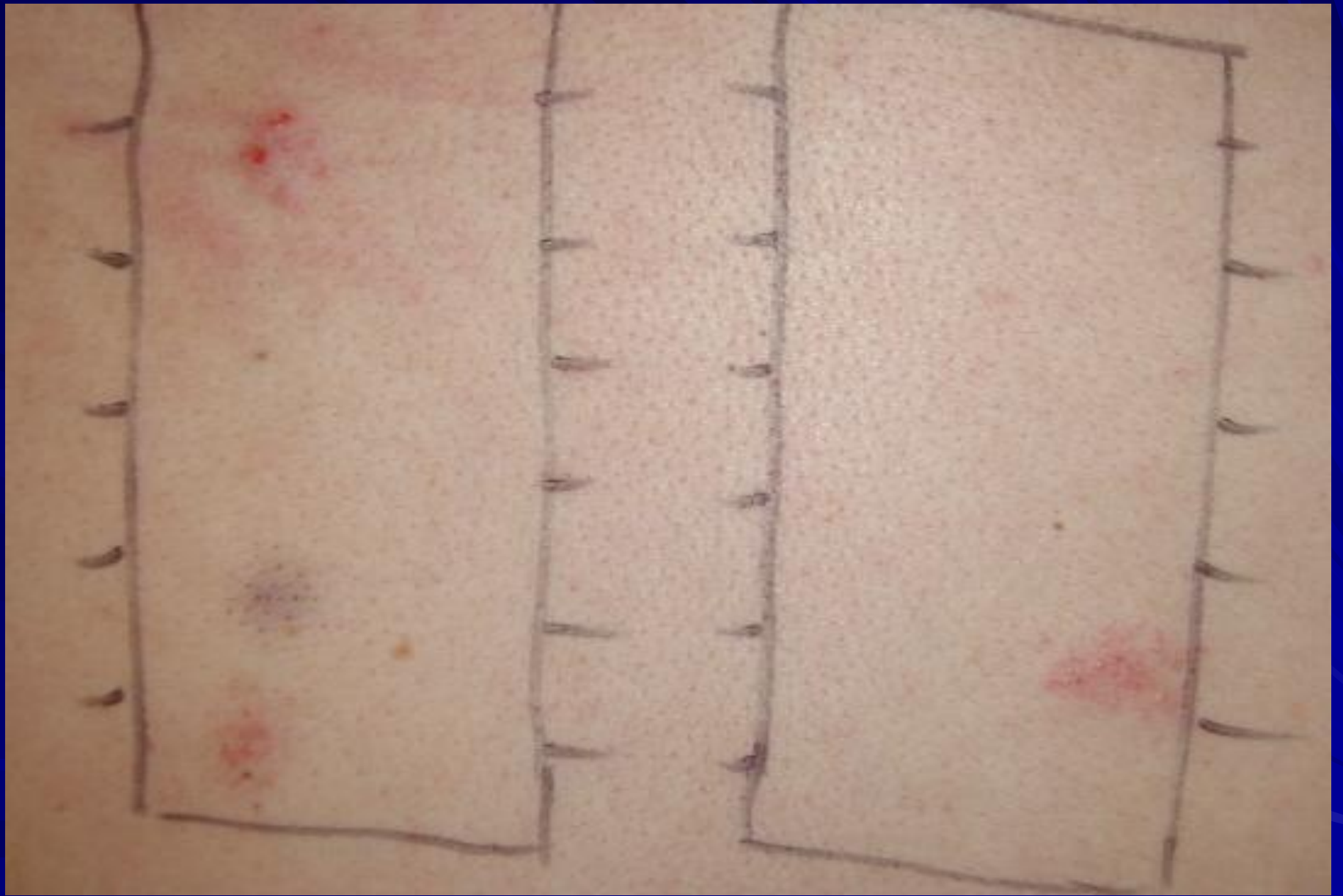
Step 2: The patches with the allergens applied on patient's back



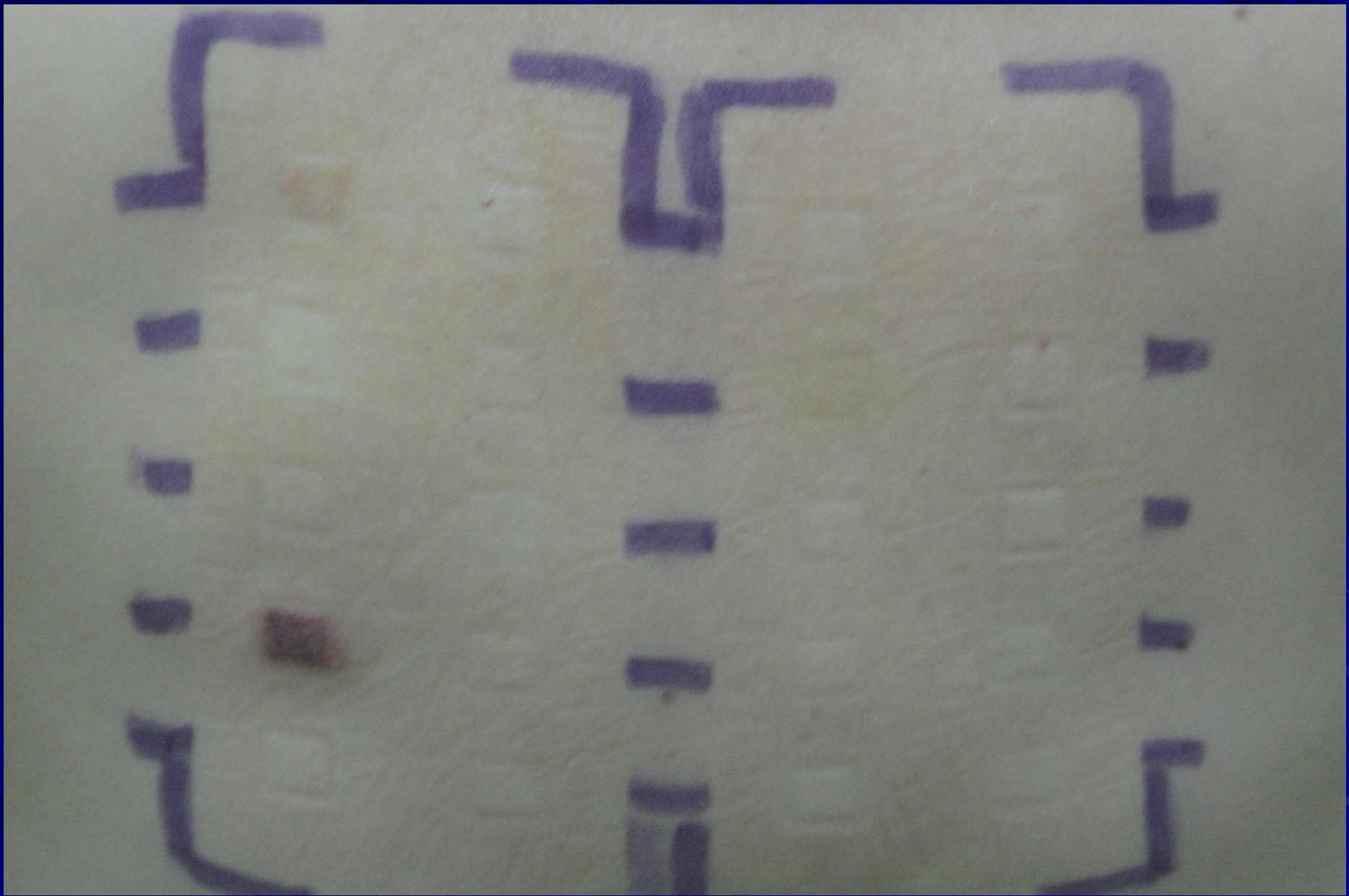
Step 3: 48 hours after application of the patches.



Step 4: The first reading recorded 30 minutes after removal of the patches



Step 5: the second reading recorded 48 hours after the 1st reading



53 years old Libyan house – wife, sensitive to Paraphenylenediamine

Differences between allergic contact dermatitis & irritant contact dermatitis

Contact Dermatitis	ICD	ACD
Individual at risk	Any one	Genetically predisposed
Mechanism	Direct irritation, non immunological	Type IV hypersensitivity reaction
Causative agent	Depend on the concentration	Independent of the amount applied
Onset	Usually gradual (depend on conc.)	Once sensitized, usually rapid
Border of skin lesion	Distinct to the site of exposure	May show peripheral extension
Patch test result	Negative	Positive

Treatment of Contact Dermatitis:

- The ideal treatment is identifying the offending agent and their elimination.
- Antihistamine to control itching.
- Topical or systemic antibiotics if there is secondary bacterial infection.
- The mainstay treatment is topical steroids.
- In chronic conditions emollient are advised.
- In sever acute widespread condition short courses of systemic antibiotics are advised.



Thank U