

A Workshop on Bio-Markers EMA / CHMP meeting

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A BioMarker is a characteristic that is objectively measured & evaluated as an indicator of a

- Normal biologic process
- Pathogenic process
- Pharmacologic response to a therapeutic intervention

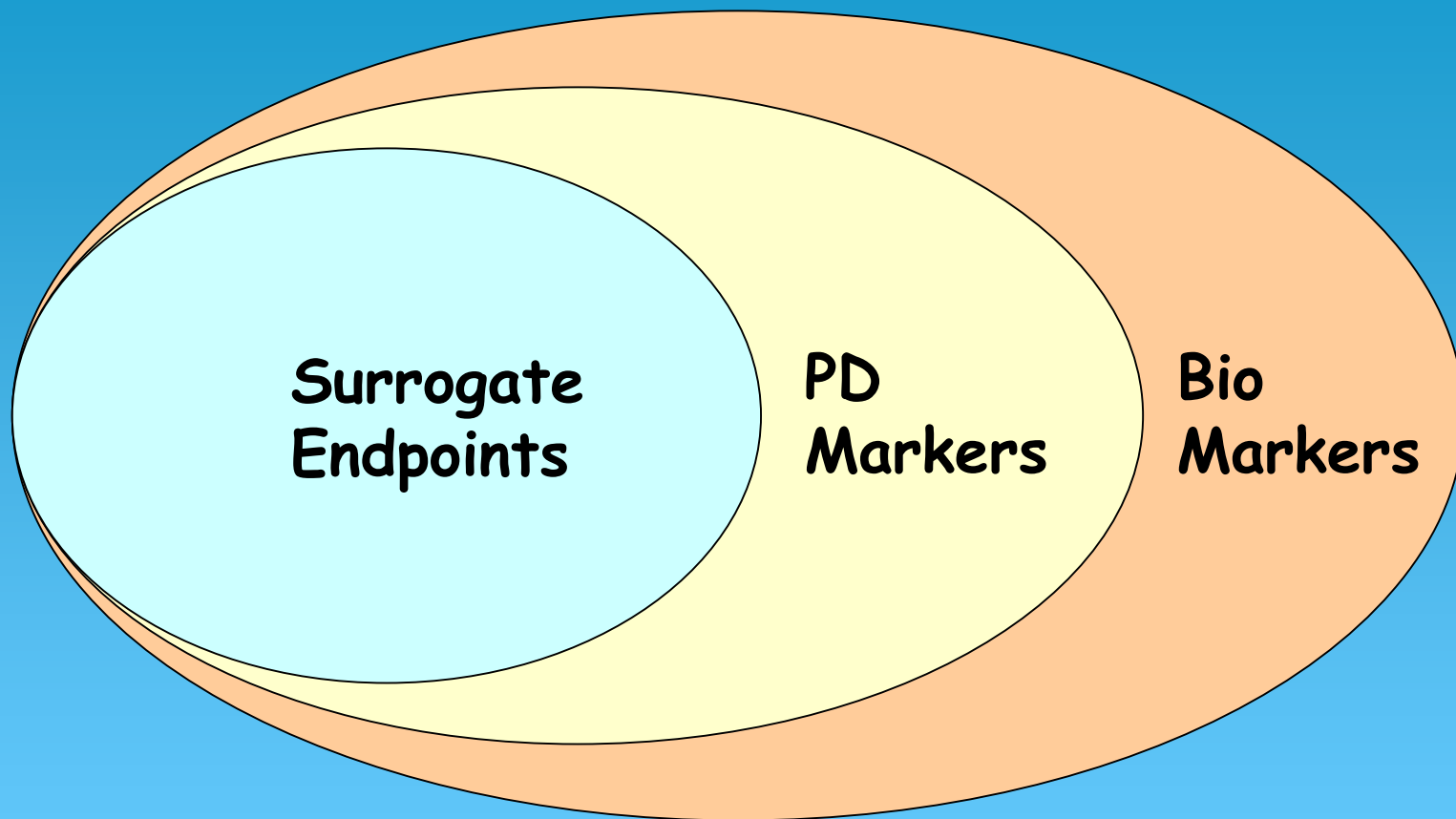
Biomarkers Definition Working Group (2001)
Clin Pharm Ther 69 (3):89

A pharmacodynamic marker
reflects a pharmacologic response

A surrogate endpoint is

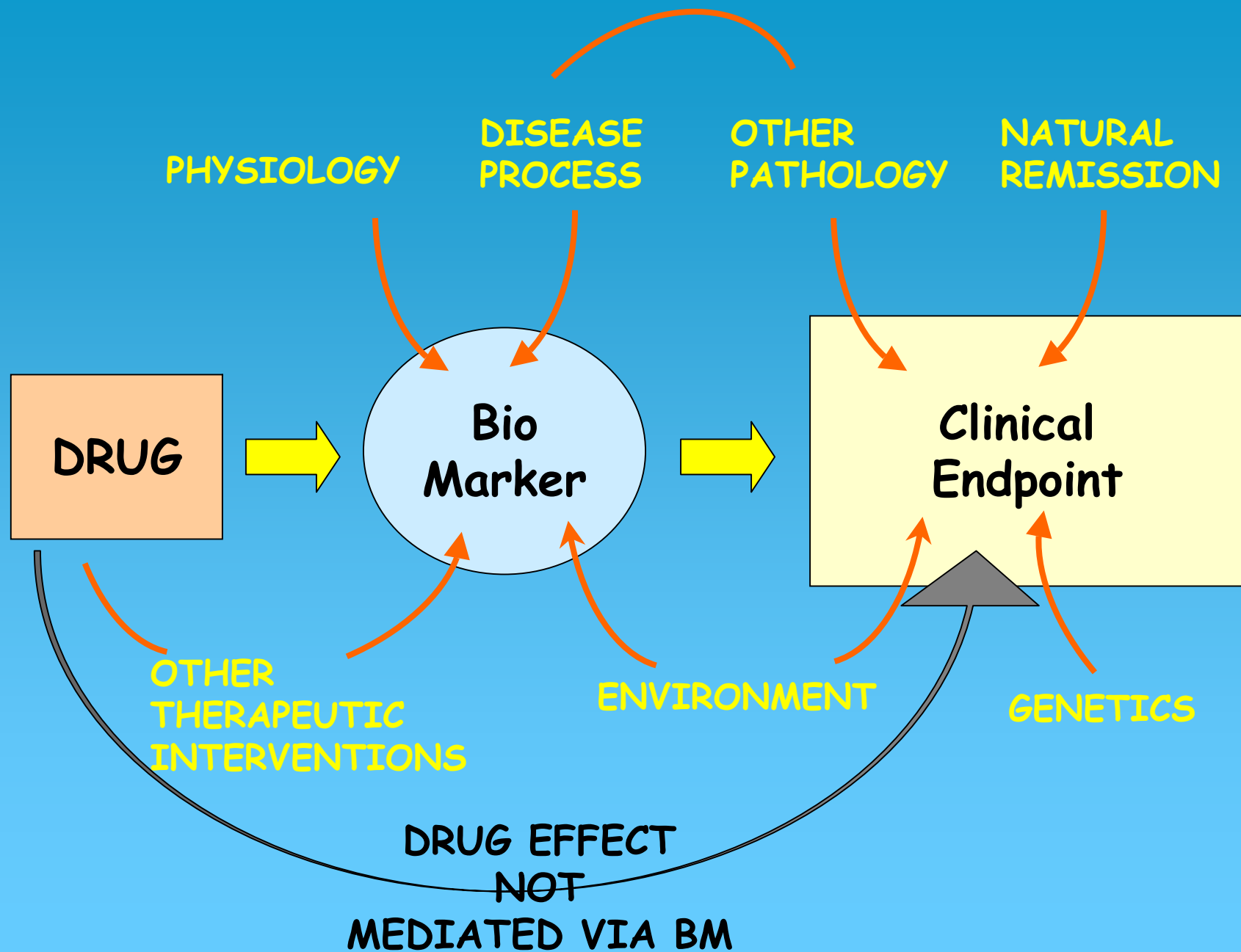
- a biomarker intended to *substitute* for a clinical endpoint
- expected to *predict* clinical benefit/harm (or the lack thereof)
- based on epidemiologic / therapeutic / patho-physiologic....
....or other scientific evidence

Frank & Hargreaves (2003)
Nature Rev Drug Disc 2:566



The use of Biomarkers is not new

DRUG	BIOMARKERS	CLINICAL ENDPOINT
Anti HTA	Blood pressure	Stroke, Heart failure
LDE cholesterol Lowering	Blood cholesterol	Coronary heart disease, infarction mortality
Anti-retrovirals	Viral RNA load	Survival
Anti-diabetics	HbA _{1c} , glycemia	Diabetic neuro- /nephropathy
Anti-Osteoporosis	BMD	Fracute rate
Anti-Cancer agents	Imaging of tumor size	Survival



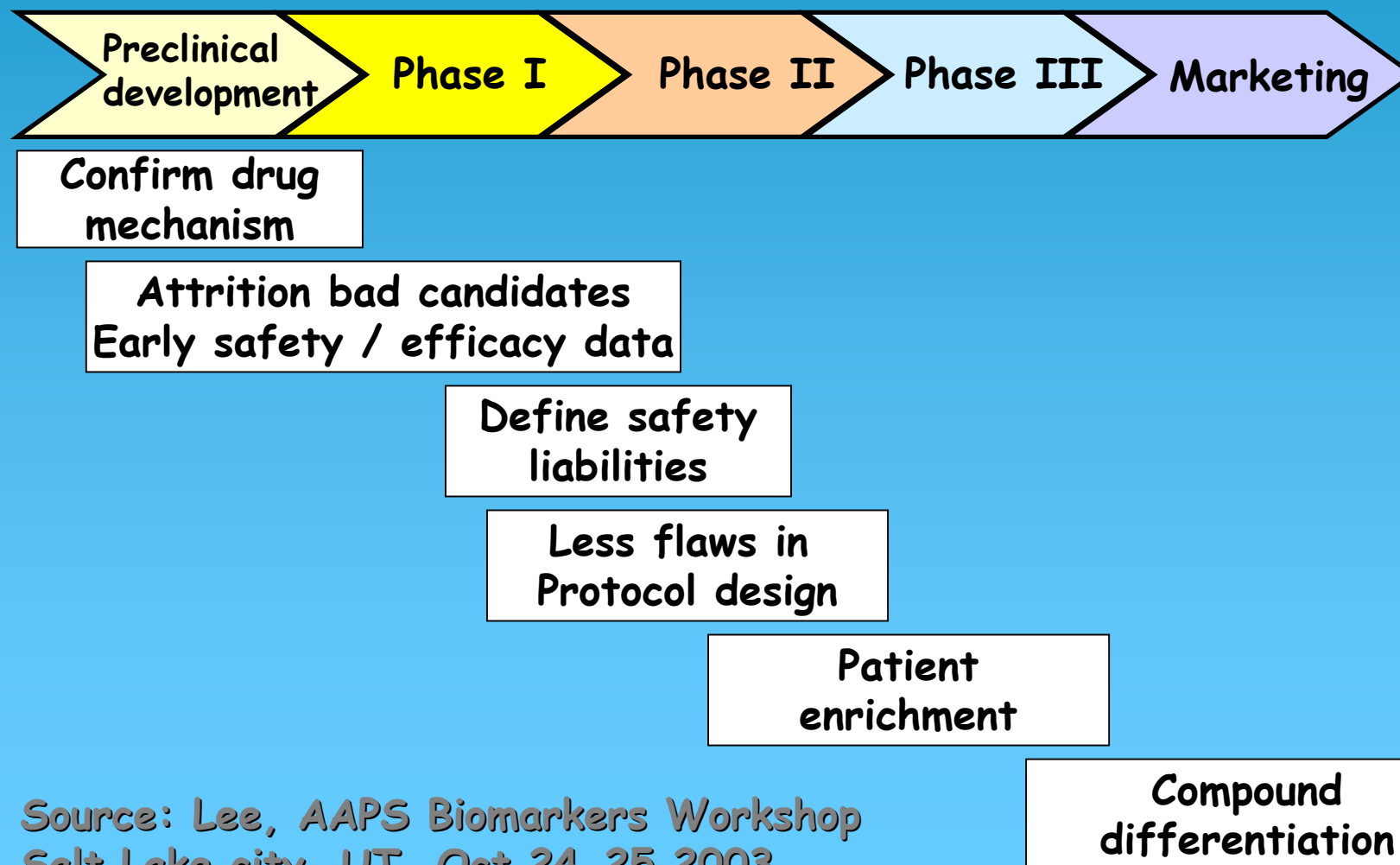
What kind of « Response » BM are we looking for?

- Toxicity BM: reports on toxicological effect
- Target BM: reflects the drug interaction with the target (receptor/organ...)
- Mechanism BM: informs on a downstream effect of the drug
- Stratification BM: predicts the presence/absence of the drug response

What kind of new approach do we expect from BM?

- More precised information
- thanks to new technologies &
- more specialised uses
- *throughout* the drug development

Biomarkers add value and minimise risk at different stages of drug Development/Registration



Source: Lee, AAPS Biomarkers Workshop
Salt Lake city, UT, Oct.24-25,2003