

HORMESIS: Dermatologic Opportunities and Options

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Conflict of Interest

- Orthodox EBD

WHY SKIN?

I. DIVERSITY

- QSAR
- CELLS
 - Keratinocytes
 - Fibroblasts
 - Melanocytes
 - Langerhans
 - Merckels
 - Etc.
- AMINALS
 - Evolution
- MAN
- MULTILAYERED COMPLEX ORGAN

II. MULTILAYERED ORGAN

- Stratum Corneum
- “Viable” Epidermis
- Dermis
- Subcutaneous Fat
- Immunologically Active
- C Fibers
- etc.

III. “INTERNAL” SYSTEMS

- ECCRINE GLAND
 - Major Evolutionary Impact
- SEBACEOUS
 - Function: ??
- APOCRINE
 - Function: ??
- HAIR FOLLICLE
 - Biological Marvel !

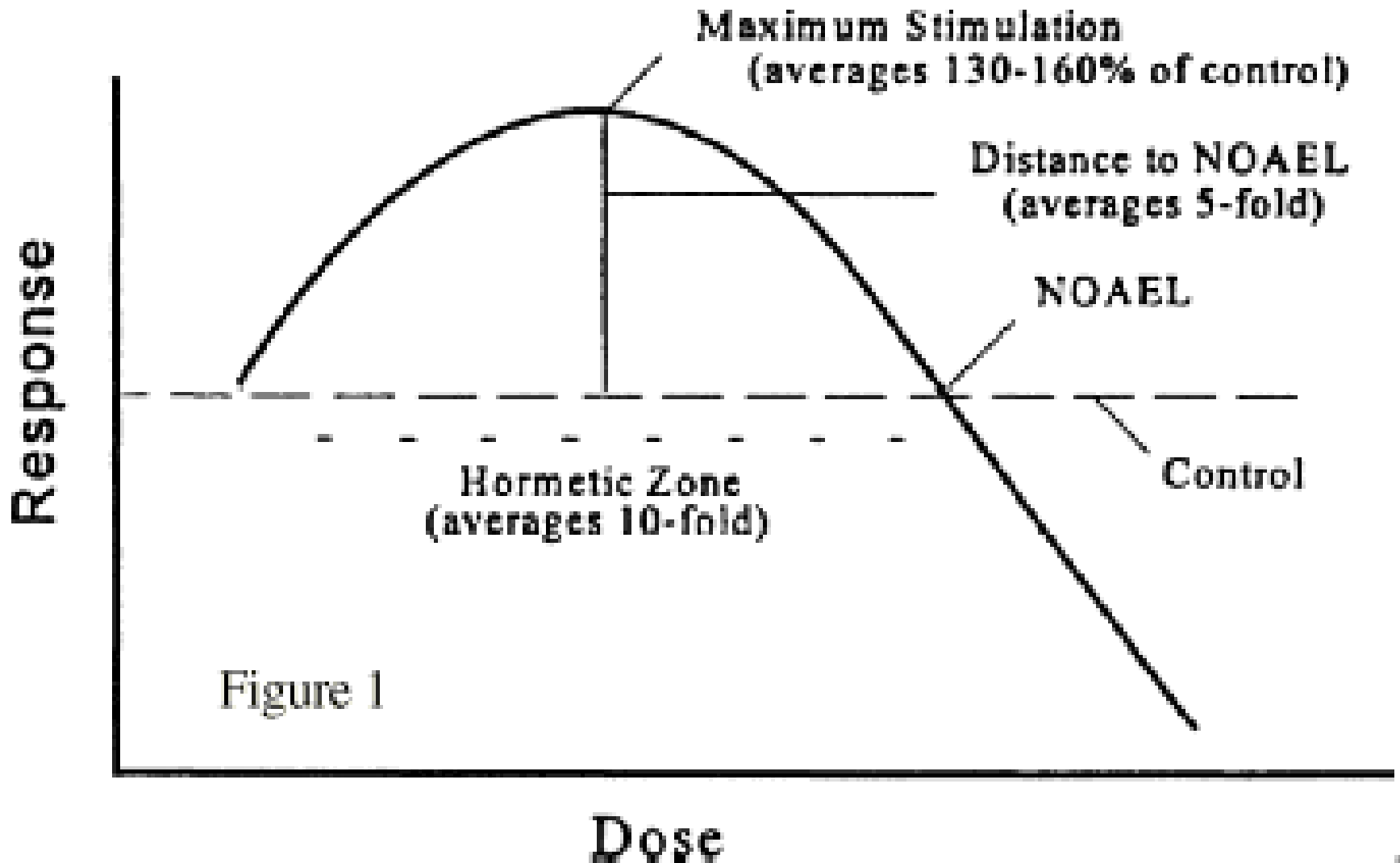
IV. BIOENGINEERING

- H_2O
- Friction
- TSA (nerve function)
- Na
- K
- O_2
- CO_2
- etc.

V. DNA MICROARRAYS IN SKIN

- Melanoma and melanocytes
- Carcinomas
- Keratinocyte differentiation
- Wound healing and inflammatory diseases
- Proinflammatory and immunomodulating cytokines in skin
- Effects of UV and environmental stress
- Epidermal stem cells and the hair cycle
- Fibroblasts and other cutaneous cell types
- Artificial skin substitutes

HORMESIS



HORMESIS IN SKIN

- Sodium Lauryl Sulfate
 - Bloom *et al.* *Dermatology* 1994;188:263-268
- Retinoic acid
 - Varani *et al.* *J Invest Dermatol* 1991; 97:917-921.
- Imidazole derivatives
 - Cotovio *et al.* *Skin Pharmacol* 1996; 9:242-249
- Arsenic, Chromium, Cadmium, Lead
 - Gennings *et al.* *J agric biol environ stat* 2002; 7(1): 58-73.
- Ciprofloxacin
 - Vega *et al.* *Toxicol appl pharmacol* 2001; 172:225-232.

HORMESIS IN TUMOR CELL LINES

Agents

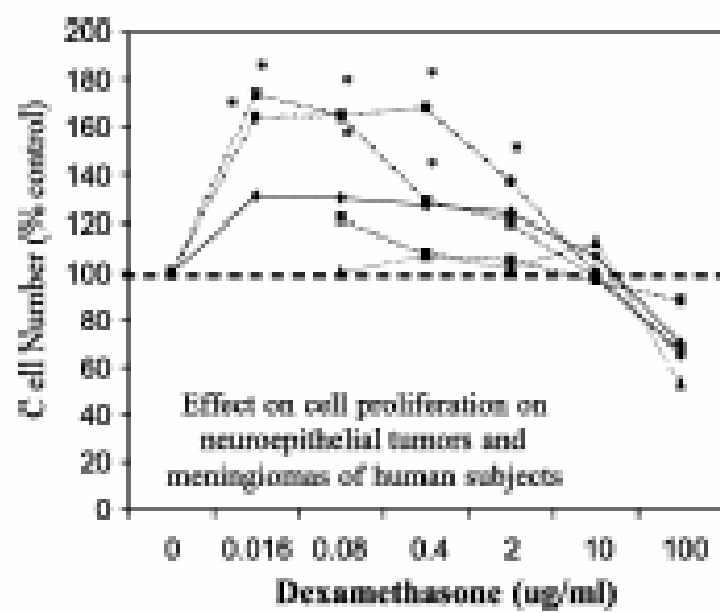
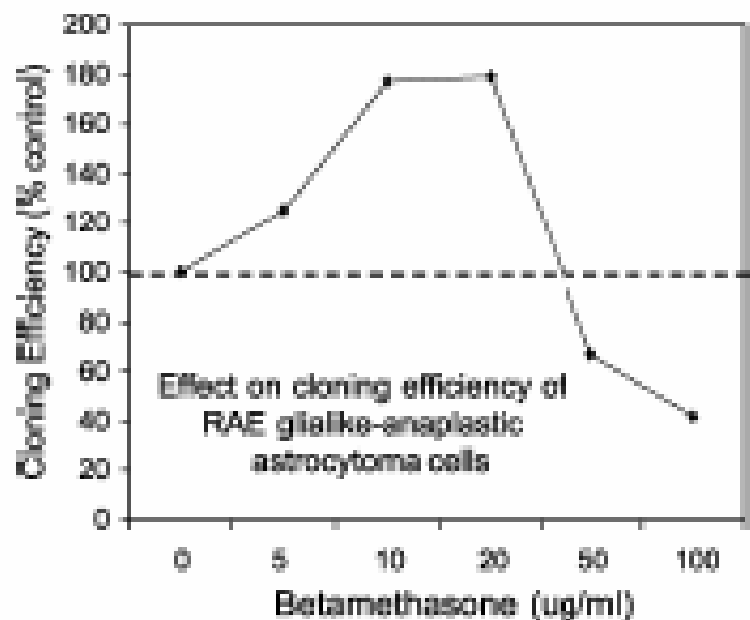
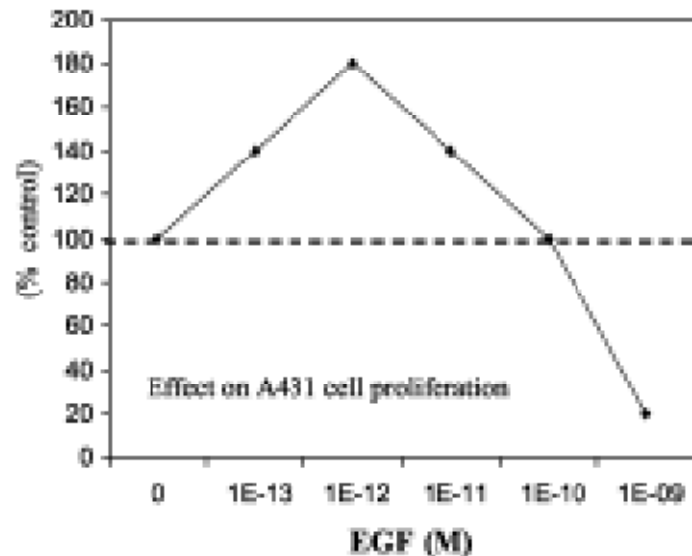
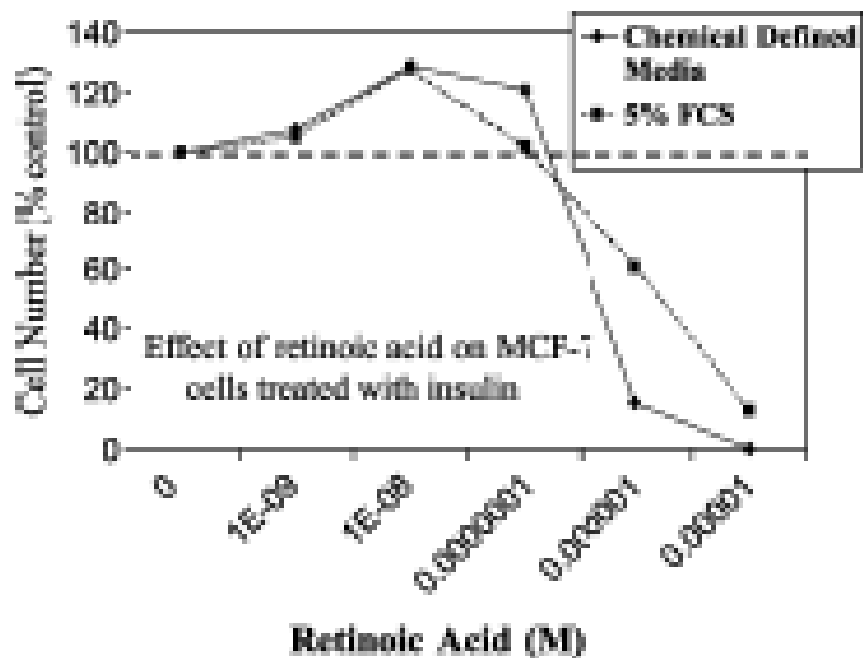
Tumor cell lines

Epidermal Growth
Factor

Ovarian
Colon
Epidermoid
Breast

Dexamethasone

Neuroepithelial
Pancreas
Meningiomas



WHY NOT LARGE LITERATURE?

- Arbitrary (not “justified”) Dose Response
- Not Sought
- Real Data Probably Rejected

WHY CARE?

- Magnificent Tool for Mechanisms!
- Pharmacologic Opportunity?

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