Stryer's presentation of the many and varied features of protein structure, and in his detailed but readable account of gene structure and expression. If there is a weakness, it is in the accounts of metabolic reactions and pathways. These are clear and understandable, but I was disappointed in the attempts to integrate various aspect of metabolism, to show how they are controlled and to put all of this into a physiological setting. Although one can glean quite a lot of information about aspects of metabolic regulation from assorted sections of the text, even with a chapter entitled "Integration of Metabolism" one still has largely to form one's own overall synthesis. Apart from providing a good account of hormone mechanisms, the final section dealing with molecular physiology also fails to resolve this problem, because the emphasis is on the 'molecular' rather than the 'physiological'.

Despite my reservations about the treatment of metabolism, overall this is an outstanding book. There is so much competition in the textbook market these days, the publisher could scarcely aim for anything less. □

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The making of the maladapts

Natural Obsessions: The Search for the Oncogene. By Natalie Angier. *Houghton Mifflin: 1988. Pp. 394. $19.95.*

DEAR NATALIE,

Wonderful book! The story blew me away. You say "MGM or Columbia Pictures might have turned it into a film, if Hollywood wasn't so thoroughly convinced that scientists are a group of unphotogenic maladapts". Well, have I got *news* for you. We want to make that movie! I'm really very very juiced up about the idea.

Those scientists you hung out with and wrote about have got real edge. Never mind they work on cancer. Handled right it can pull the crowds in; remember Love Story? Of course we'll need to make some things just a tad simpler. You have to reckon that most movie goers are just a shade sly of completely dumb when it comes to science.

Even I'm more at home with Eisenstein than Einstein, and tho I was concentrating some I didn't understand all you wrote about the oncogenes that freak those guys out at the Whitehead and Cold Spring Harbor. But for the movie, the details won't matter. We'll just need to make it clear that the research will likely cure cancer, and real soon.

You know, you're dead right when you accuse us film makers of stereotyping scientists. I guess we do tend to make them awkward and asexual, with the men having acne and glasses, and the women glasses and loud, whining voices. But we'll change all that.

I can't tell you how crazy casting were about your main characters. Especially Bob Weinberg — "the Doris Day of molecular biology". Keep this quiet, but they will likely offer the part to Richard Dreyfuss. (Could you get hold of a pair of those funny fat-soled shoes you say Bob wears for his flat feet for our costume designer to check out?) I'm not going to say who we have in mind to play Mike Wigler but he's close to your description ". . . a little bit of a schlemiel . . . yet his face has a cuteness to it — when he smiles he looks like a troll doll — and he's too aware of what's going on around him to qualify as a nerd".

There are two incidents that we have slated for the treatment. One is when the Weinberg lab luck out with the metastasis gene and find they've reisolated the ras gene. The other is when Mariano Barbacid comes from nowhere and nearly beats Weinberg and Wigler in getting the ras gene in the first place. What's really great is that he's Spanish — for which, since we've gotten orders to find parts for minority actors, read Hispanic.

And we just *love* those sexy young postdocs. You know, Snezna Rogelj, who "isn't just pretty; she's dazzling . . . in a short leather skirt she made from Indian purses". And Cliff Tabin, "delightfully handsome in a husky, masculine, linebacker sort of way"; René Bernards, who "looks like a Leonardo sketch of a young horseman, or at least a contemporary interpretation by Calvin Klein"; and Cornelia Bargmann, "one of the few almost perfect people I've ever met".

You know what's missing though? Sex. With all those good looking guys working late at night, surely something must have gone on oftentimes. (Otherwise we've been *right* about the asexual stereotype.) Anyway, we're going to need sex; without it the movie will be a bummer.

What about the ending? I guess the story shouldn't finish with the ras genes or the discovery of complementary oncogene types, or even the discovery of the 'neu' oncogene. Hows about the great moment when the Weinberg lab gets the retinoblastoma gene? What do you think? By the way, did you check out the bit where you describe how that Nature editor Newmark wanted to read the retinoblastoma paper before accepting it and then insisted it was published as a short letter? Unbelievable! What a nebbish! Still, we need a bad guy or two.

NEWT P. KRAEMER

Onco Productions, London and Los Angeles

Hot topics

John L. Roberts

Temperature Biology of Animals. By A.R. Cossins and K. Bowler. *Chapman & Hall: 1987. Pp.339. £32.50, $57.50.*

RANGING from "molecules to the organism, and from physiology to behaviour", the authors of this useful book for advanced undergraduates and postgraduate students provide their readers with a sampling of studies in animal thermobiology. They begin, appropriately, with a discussion of what temperature is — a vexing question for many students — and of brownian movement as a 'thermometer' of kinetic energy. This leads in readable fashion into an account of the physical properties of thermal environments, and to a summary of the search for temperature coefficients that satisfy the physiologist's need for orderly descriptions of temperature effects upon rate processes such as metabolism.

Cossins and Bowler then consider how temperature change affects the lives of bradymetabolic and tachymetabolic animals; here they describe such fascinating variant metabolic patterns as periodic endothermy, a kind of shivering thermogenesis, which is used by dung beetles, honey bees and hawk moths, and lamnid sharks and tuna, to keep locomotory muscles warm. The discussion of biochemical pathways used for aerobic heat production during both shivering and non-shivering thermogenesis makes clear by its brevity that this is a subject deserving of far more attention in the future.

A variety of adaptive mechanisms for heat dumping and heat retention evolved with endothermy, most notably evaporative cooling and the addition of insulating features such as feathers and fur. Just how significant behavioural thermoregulation has been in the evolution of endothermy remains a matter of debate, but evidence supports the idea that neural networks and setpoint controls for thermoregulation already existed when the earliest endotherms appeared. The authors conclude that body size, too, must have been important. This argument finds support in the observation that rates of heat loss from body surfaces, metabolic rates, the power output (and thus heat production) of muscles and the costs of locomotion all scale downward with increasing mass.

A number of ectotherms are considered which show acclimation of rate functions such as locomotion, oxygen uptake, axonal conduction time and epithelial transport, activities that are often modulated by length of the daily photoperiod. The authors then discuss current ideas about how cellular compensations for temperature change occur. These centre