
FOREWORD

Over the past two years, researchers in the University of Mississippi Department of Surgery have put together a series of meetings and presentations that have formed a regular source of contact for exchanging ideas. Information discussed at these meetings includes finished work, work in progress, proposed investigations, and speculation.

The participants represent a wide range of investigational interests. These areas include experimental microsurgery, tissue responses to injury, peripheral nerve regeneration, microbiology, transplantation immunology, anatomy, degenerative neuronal disease, wound healing, inflammatory mediation, and gene therapy. Regular presentations of topics from this mix of material have taught everyone a lot and have suggested interactions and developments that might not have occurred without interdisciplinary discussions.

A year ago, Dr. Larry S. McDaniel presented the concept of cell-mediated DNA transport to one of these meetings. He discussed in detail a paper by La Cava and his colleagues, a paper which will be reviewed in the articles that follow. The experiments described in this paper demonstrate that plasmid DNA injected subdermally can be ingested and transported by macrophage-type cells to remote areas of inflammation.

The conclusion of this paper initiated extended discussion within the research group. Investigators working in areas of wound healing promptly envisioned transport of biologically active promoters to sites of tendon lacerations, nerve injuries, skin wounds, and fractures to manipulate the inflammatory processes of these sites. Other investigators, considering chronic diseases with inflammatory processes (including arthritis and rejection), in turn, speculated on the use of the inflammatory elements of these diseases as beacons for remotely injected DNA that would be aimed at the modification of the actual processes.

The immediate outcome of Dr. McDaniel's presentation was the initiation of experiments to study cell-mediated DNA transport into skin wounds in mice, a work in progress. Extended speculation about other applications continued, and this journal expressed interest in publication of essays describing potential uses of cell-mediated DNA transport. The results are published in this issue.

These articles place cell-mediated DNA transport in the context of "gene therapy," a term that will, at some point, probably broaden to "regenerative medicine," or the manipulation of cell metabolism to correct the stigmata of injury and metabolic disease. Individual essays explore possible applications of cell-mediated DNA transport to disorders, ranging from tendon lacerations to rheumatoid arthritis. We hope that this collection will usefully illustrate its central concept and serve as a stimulating predictor of new approaches to treatment.

I would like to thank Dr. Stephen Bruck, who was Editor-in-Chief when these articles were prepared, and who has so recently, sadly, passed away, for giving them a place in the journal; Dr. Richard Edlich, our new Editor-in-Chief, who was at that time Assistant Editor, for introducing me to the journal and for giving me invaluable early lessons in research teamwork; and our Department Chairman, Dr. William Turner, who energetically fosters innovative research and collaboration by his faculty.

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