Award Number: DAMD17-01-1-0816

TITLE: Regulation of Vitamin D Metabolism

PRINCIPAL INVESTIGATOR: Norman H. Bell, M.D.

CONTRACTING ORGANIZATION: Medical University of South Carolina
Charleston, South Carolina 29425

REPORT DATE: October 2004

TYPE OF REPORT: Annual

PREPARED FOR: U.S. Army Medical Research and Materiel Command
Fort Detrick, Maryland 21702-5012

DISTRIBUTION STATEMENT: Approved for Public Release;
Distribution Unlimited

The views, opinions and/or findings contained in this report are
those of the author(s) and should not be construed as an official
Department of the Army position, policy or decision unless so
designated by other documentation.
**Title and Subtitle**

Regulation of Vitamin D Metabolism

**Author(s)**

Norman H. Bell, M.D.

**Performing Organization Name(s) and Address(es)**

Medical University of South Carolina
Charleston, South Carolina 29425

**E-Mail**

belln@musc.edu

**Sponsoring/Monitoring Agency Name(s) and Address(es)**

U.S. Army Medical Research and Materiel Command
Fort Detrick, Maryland 21702-5012

**Supplementary Notes**

Approved for Public Release; Distribution Unlimited

**Abstract (Maximum 200 Words)**

Compared to whites, blacks and Asian Indians have a reduction in serum 25-hydroxyvitamin D [25(OH)D] as a consequence of increased skin pigmentation that causes a diminished rate of dermal production of vitamin D₃ from 7-dehydrocholesterol and possibly of increased activity of 25(OH)D-24-hydroxylase, the rate-limiting enzyme for degradation of vitamin D metabolites, in cultured skin fibroblasts. Thus, production and degradation of 25(OH)D may be altered in these two racial groups. The purpose of this research is to determine the response to vitamin D in different racial groups, whites, blacks and Asian Indians. This will be accomplished by comparing the response of serum 25(OH)D to treatment with vitamin D. No results are available because the human subject restriction for this grant by the Army has not been removed.

**Subject Terms**

Asian Indians, blacks, bone resorption, vitamin D, parathyroid hormones

**Security Classification of Report**

Unclassified

**Security Classification of This Page**

Unclassified

**Security Classification of Abstract**

Unclassified

**Number of Pages**

4

**Price Code**

Unlimited
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cover</td>
<td>1</td>
</tr>
<tr>
<td>SF298</td>
<td>2</td>
</tr>
<tr>
<td>Introduction</td>
<td>4</td>
</tr>
<tr>
<td>Body</td>
<td>4</td>
</tr>
<tr>
<td>Key Research Accomplishments</td>
<td>4</td>
</tr>
<tr>
<td>Reportable Outcomes</td>
<td>4</td>
</tr>
<tr>
<td>Conclusions</td>
<td>4</td>
</tr>
<tr>
<td>References</td>
<td>4</td>
</tr>
<tr>
<td>Appendices</td>
<td>4</td>
</tr>
</tbody>
</table>
Introduction
Compared to whites, blacks and Asian Indians have a reduction in serum 25-hydroxyvitamin D [25(OH)D] as a consequence of increased skin pigment that causes a diminished rate of dermal production of vitamin D₃ from 7-dehydrocholesterol and possibly of increased activity of 25(OH)D-24-hydroxylase, the rate-limiting enzyme for degradation of vitamin D metabolites, in cultured skin fibroblasts. Thus, production and degradation of 25(OH)D may be altered in these two racial groups. The purpose of the proposed research grant is to determine the response of serum 25(OH)D to vitamin D in different racial groups, whites, blacks and Asian Indians. This will be accomplished by determining the response of serum 25(OH)D to treatment with vitamin D in individuals.

Body
To date, the human subject restriction for this grant by the Army has not been removed, no studies have been carried out, so no results are available. We have revised our human subject protocol four times, revised our scientific protocol an additional time, and participated in a number of teleconferences with the Office of Regulatory Compliance and Quality. The most recent resubmissions in February and May 2004 have not had any response from the Army to date.

Key Research Accomplishments
N/A

Reportable Outcomes
N/A

Conclusions
N/A

References
N/A

Appendices
None