The Thyroid Foundation of America, Inc.

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To: Food and Drug Administration
Advisory Committee for Pharmaceutical Science

Levothyroxine Bioequivalence:
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The Thyroid Foundation of America is the oldest and largest organization devoted to providing education and support for thyroid patients and increasing public awareness about thyroid issues. We periodically educate our members as well the thousands of others who visit out Foundation Web site (www.AllThyroid.org), that the serum TSH is the most effective and precise way to monitor thyroid hormone therapy. Because of the log linear relationship between thyroid hormone level and TSH, for every 2-fold change in free thyroxine, the TSH level will change 100-fold.

Without the reliability and accuracy of TSH measurements, patients with unrecognized hypothyroidism risk complications, including elevations total and LDL cholesterol, fatigue, depression, decreased work performance, and an overall decrease in their quality life. Patients with unrecognized hyperthyroidism are at risk for myocardial infarction, serious cardiac arrhythmias, including atrial fibrillation, anxiety, muscle weakness, diminished productivity and decreased quality of life.

We are particularly concerned about the importance of TSH measurements in evaluating the effectiveness of thyroxine therapy in patients with thyroid cancer. We must be sure that TSH is fully suppressed to minimize the likelihood of growth and spread of residual tumor throughout the life of these patients. A decrease in thyroxine dose as small as 12 mcg can cause dangerous TSH elevations in a formerly suppressed patient. TSH monitoring is also critical since changes in TSH levels can occur due to medications like iron, Amiodarone, Zoloft, and Lithium. Patients and even some physicians may not be aware of the potential thyroid effects of some of these drugs.

The FDA has recommended evaluation of thyroid hormone bioequivalence by giving 600 mcg. thyroxine to healthy volunteers and studying its metabolism by serial measurements of thyroid hormones in the blood. This is inappropriate because it ignores the critical role of TSH in evaluating the bioequivalence of the far more critical tissue effects of thyroid hormones.

We urge the FDA to separately consider this question with experts in the field of biochemical measurements in thyroid disease.

Thank you for attention to these important issues.

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