CENTER FOR DRUG EVALUATION AND RESEARCH

APPLICATION NUMBER:

022406Orig1s000

<u>PHARMACOLOGY REVIEW(S)</u>

MEMORANDUM

Xarelto (rivaroxaban)

Date: June 30, 2011
To: File for NDA #22-406
From: John K. Leighton, PhD, DABT
        Associate Director for Pharmacology/Toxicology
        Office of Oncology Drug Products

The pharmacology/toxicology review of Dr Chopra was examined previously and no additional pharmacology/toxicology studies were deemed necessary to support the proposed indication, and no additional nonclinical studies are needed to support the current approval. A labeling review was previously deferred.

The pharmacology/toxicology information in the labeling is acceptable and supported by the studies submitted for review. The pharmacologic classification "factor Xa inhibitor" was chosen as it is pharmacologically valid and the terminology is consistent with other drugs in the class. Currently, there is no need or scientific justification to distinguish in pharmacologic classification, whether an inhibitor is "direct" or "indirect" in relation to factor Xa inhibitors, regardless of the pharmacologic mechanism of action. This approach is consistent with the FDA guidance: Labeling for Human Prescription Drug and Biological Products — Determining Established Pharmacologic Class for Use in the Highlights of Prescribing Information.

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/s/

JOHN K LEIGHTON

06/30/2011

MEMORANDUM

Xarelto (rivaroxaban)

Date: May 12, 2009
To: File for NDA #22-406
From: John K. Leighton, PhD, DABT
Associate Director for Pharmacology
Office of Oncology Drug Products

I have examined pharmacology/toxicology supporting review provided by Drs. Chopra and Laniyonu. I concur with their conclusions that Xarelto may be approved. No additional pharmacology or toxicology studies are necessary for the proposed indication. A review of the labeling will be deferred.

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  /s/
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John Leighton
5/12/2009 06:20:25 AM
PHARMACOLOGIST
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