




Improving People’s Lives by Treating and Preventing the Clinical Consequences of Vitamin D Insufficiency and Secondary Hyperparathyroidism

Company Overview

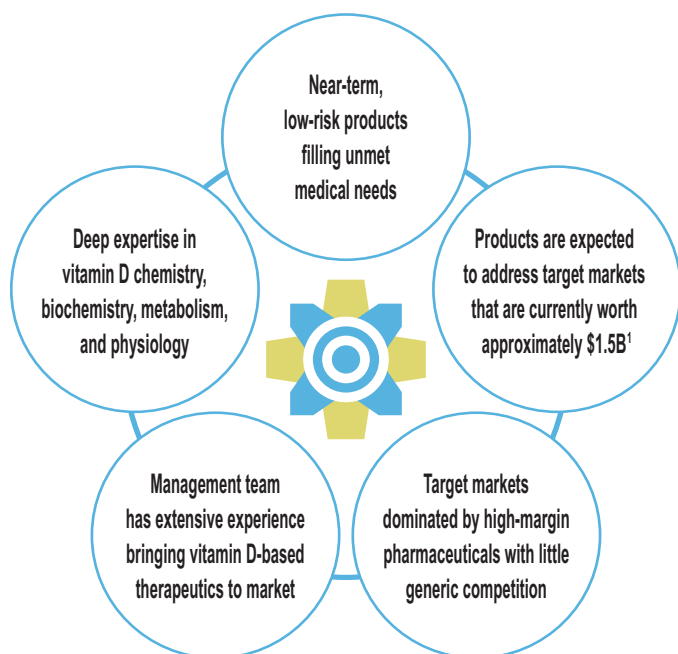
Cytochroma is a clinical stage specialty pharmaceutical company focused on developing and commercializing proprietary products to treat and prevent the clinical consequences of vitamin D insufficiency and secondary hyperparathyroidism (SHPT) associated with chronic kidney disease (CKD). The Company specializes in developing new vitamin D therapies which are designed to safely and effectively treat patients with stage 3, 4 or 5 CKD. Cytochroma also has a portfolio of CYP24 inhibitors and novel phosphate management therapies in early stage development.

Research and Development Pipeline

Product	Indication	Research	Preclinical	Phase I	Phase II	Phase III	Partners
Lead Programs							
CTA018	SHPT						
CTAP101	Vit D Insufficiency, SHPT						none
CTAP201	SHPT						none
Other Programs							
Phosphate Management Products	Hyperphosphatemia						none

*MTPC will co-develop and co-commercialize CTA018 with Cytochroma in the U.S., and has an exclusive royalty-bearing license in Asia.

Investment Highlights



1. IMS

Addressing an Unmet Medical Need

Dialysis patients need effective treatment to:

- Control SHPT and vitamin D insufficiency
- Prevent cardiovascular disease
- Prevent bone and mineral disease

Current therapies do not achieve these goals:

- CKD patients are at increased mortality risk
- Pre-dialysis patients are often not treated for vitamin D insufficiency due to lack of safe or effective treatment choices
- Current therapies may actually cause vitamin D insufficiency
- SHPT remains poorly controlled by current therapies, since less than 11%² of Stage 5 CKD patients meet the targets specified by the National Kidney Foundation in the Kidney Disease Outcomes Quality Initiative (KDOQI™) guidelines

Cytochroma’s vitamin D-based therapeutics may provide safe and effective options for pre-dialysis and dialysis patients.

2. Arenas, M et al. Nephrol Dial Transplant (2006) 21: 1663–1668

Chronic Kidney Disease

Chronic kidney disease (CKD) is the progressive loss of kidney function resulting in a decreased ability to filter waste products and maintain a balanced level of fluids and minerals in the blood. This condition is most frequently caused by diabetes or hypertension, both of which are consequences of a growing obesity epidemic worldwide.

Vitamin D Insufficiency

An estimated 70-90% of CKD patients have vitamin D insufficiency, which can lead to secondary hyperparathyroidism and resultant debilitating diseases including cardiovascular disease, anemia, and hyperphosphatemia. Mounting evidence continues to link vitamin D insufficiency with CKD progression and increased morbidity and mortality in CKD patients.

Secondary Hyperparathyroidism

Secondary hyperparathyroidism (SHPT) is a condition commonly associated with CKD patients in which the parathyroid glands secrete excessive amounts of parathyroid hormone (PTH). Excessive levels of PTH cause calcium to be released from bone and into the blood, leading to softening of the bones (osteomalacia), and calcification of vascular tissues.

Management Team

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Market Opportunity

There are over 20 million patients in the US with Stage 1 to Stage 5 CKD. Cytochroma is currently targeting Stage 3 to Stage 5 CKD patients with SHPT and vitamin D insufficiency.

The SHPT and vitamin D insufficiency market is large and growing rapidly:

Stage	Description	CKD Prevalence	% of CKD Patients with Vit D Insufficiency	% of CKD Patients with SHPT
3	Moderate decrease in kidney function	7,611,000*	70%	40%
4	Severe decrease in kidney function	400,000*	80%	60%
5	Kidney Failure	527,000**	90%	90%

*NKF 2002, **USRDS 2009 ADR

Sources: Levin, A et al., *Kidney International*. Vol. 71 (2007), pp.31-38.
Gonzalez, E et al. *Am J Nephrol* 2004;24:503-510. LaClair, R et al.
Am J Kidney Dis 45:1026-1033.

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