




COUGAR BIOTECHNOLOGY 2008 ANNUAL REPORT

Tracking a focused strategy.

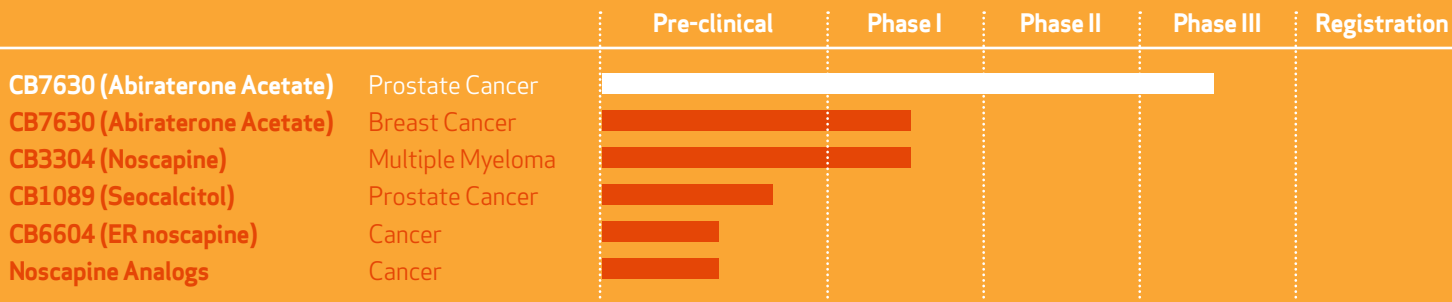


“We believe abiraterone is one of the limited number of Phase III compounds in the industry’s collective pipeline that has the potential to change the standard of care in a large market.”

HOWARD LIANG, Ph.D.

LEERINK SWANN LLC

January 5, 2009



Our journey
enters
Phase III.

“Our view of CGRB is unchanged: we continue to believe CB7630 is one of the most exciting cancer drugs in development.”

ERIC SCHMIDT, Ph.D.
COWEN AND COMPANY
December 31, 2008

Daily Trading Summary COUGAR BIOTECHNOLOGY (NASDAQ: CGRB)



* From February 8 through December 6, 2007, Cougar Biotechnology traded on the OTC Bulletin Board® under the symbol “CGRB.OB.” On December 7, 2007, Cougar moved to the NASDAQ Global MarketSM and began trading under the symbol “CGRB.” The chart to the right reflects closing prices through April 4, 2008.

To Our Shareholders and Friends:

In the life of every young development company comes a turning-point year—a year of significant milestones that both accelerate and validate its strategy. I believe 2008 was that year for Cougar Biotechnology. Driven by the performance of our lead product candidate, CB7630 (abiraterone acetate), Cougar became a Phase III company.

In April 2008, we began enrolling patients in the first Phase III clinical trial in our history, investigating CB7630's use for advanced prostate cancer in patients who have failed chemotherapy. This is an especially notable achievement considering that we accomplished this milestone approximately 2 1/2 years after starting the Phase I clinical trial of CB7630. Early this year, we set the stage for our second Phase III trial of abiraterone—which will be performed in chemotherapy-naïve prostate cancer patients—when we reached agreement on a Special Protocol Assessment (SPA) with the U.S. Food and Drug Administration (FDA). This represents a key step in starting our second Phase III study, which we expect to happen in the first half of this year.

Over the course of 2008, we continued to present promising clinical data from ongoing Phase II trials of abiraterone that continued to support the drug's clinical potential in both



chemotherapy-naïve and chemotherapy-refractory prostate cancer patients. The data continue to point to the exceptional activity of this first-in-class compound and its potential to address this unmet medical need.

Moving Forward on All Fronts

In 2008 we also capitalized on an additional opportunity for CB7630. Due to the drug's mechanism, CB7630 may be applicable to the treatment of breast cancer in addition to the treatment of prostate cancer. To investigate this further, a Phase I/II trial of CB7630 in patients with advanced breast cancer was launched in November 2008 and is sponsored by Cancer Research UK. During 2008 we also continued to witness further progress in the development of the other product candidates in our pipeline. CB3304 (noscapine) continued to make progress in its Phase I/II trial in patients with advanced multiple myeloma and we continued to consider the potential clinical strategy for CB1089 (seocalcitol) as well.

Solid Financials, Solid Experience

2008 marked Cougar's first full year as a publicly traded company on The NASDAQ Global Market[®]. During the year, we joined the broad-market Russell 3000[®] Index, a move we believe will carry multiple benefits for our stockholders,

including greater liquidity and exposure to additional institutional investors. We enter 2009 in solid financial position as well, ending the year with approximately \$91.0 million in cash.

We are guided in our journey by a seasoned management team and Board of Directors with experience that spans the biotechnology and pharmaceutical industry, academia and the financial community. On behalf of our management and Board, I would like to thank each of our shareholders for your continued loyalty and support. When Cougar was founded in 2003, we chose to invest in novel oncology compounds that we believed would have strong potential to create value for shareholders. As the company continues to grow and mature, I am extremely proud of our dedication, determination and accomplishments and look forward to the potential to create additional shareholder value in 2009 and beyond.

Alan H. Auerbach
Chief Executive Officer, President and Founder

Phase III: An Emerging Paradigm Shift

“In our view, abiraterone is one of the most exciting drugs in decades to address prostate cancer. It is especially impressive in that it works to reduce PSA levels in patients even after currently approved drugs stop working.”

SIMOS SIMEONIDIS, Ph.D.
RODMAN & RENSHAW, LLC
November 6, 2008*

*Please see required disclaimer on inside back cover.

Our lead drug candidate, abiraterone acetate (CB7630), entered Phase III studies for castration-resistant prostate cancer (CRPC) in 2008—approximately 2 ½ years after we began Phase I clinical trials. This relatively rapid development path results from what industry analysts call abiraterone’s “substantial promise” for treating multiple forms of prostate cancer.

At the core is CB7630’s unique targeted mechanism of action: a reduction in peripheral testosterone production. Research suggests that once prostate cancer has progressed after treatment with hormonal therapy, it is being fueled by testosterone that is produced by these peripheral sources. Abiraterone, a once-daily oral drug, inhibits this testosterone production by blocking two key enzymes involved in the biosynthetic pathway for testosterone.

Our first Phase III trial, launched in April 2008, involves men with metastatic CRPC who have failed docetaxel-based chemotherapy. This double-blind, randomized study is now enrolling 1,160 subjects at 150 sites in the U.S., Canada, Europe and Australia. We expect our second, pivotal Phase III trial to begin in the first half of this year and enroll 1,000 patients with metastatic CRPC who have yet to receive chemotherapy—a potentially large market opportunity.

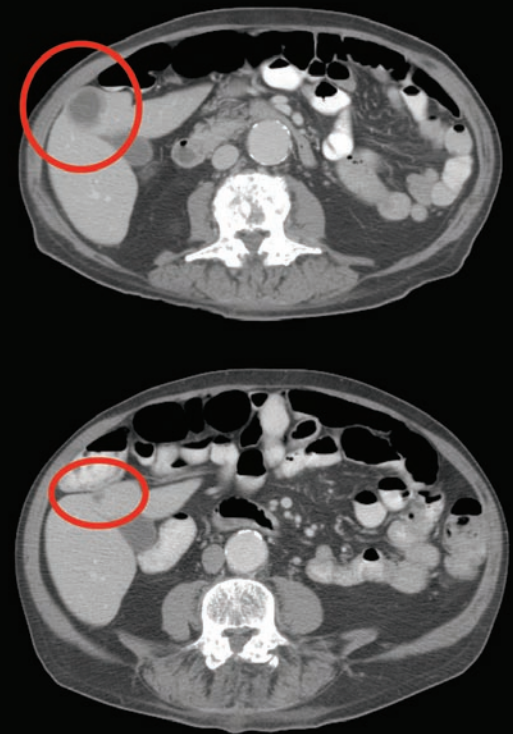
ABIRATERONE PHASE I AND II STUDIES, ASCO 2008

Study	COU-AA-001	COU-AA-002	COU-AA-003	COU-AA-004	COU-AA-BMA
CRPC	Phase I/II, Prechemotherapy	Phase II, Prechemotherapy, ketoconazole naïve	Phase II, Postchemotherapy, single agent	Phase II, Postchemotherapy, prednisone combo	Phase II, Bone metastases pre & post chemotherapy, Prednisone combo
Patients enrolled	54	40-50	34	38	44
Evaluable patients	54	12	34	38	41
PSA Decline ≥ 50%	38/54 (70%)	9/12 (75%)	16/34 (47%)	17/38 (45%)	21/41 (51%)
Tumor Response (RECIST), other	PR: 15/29 (52%); SD: 8/29 (28%) Median Time to PSA progression: 231 days	10 pts on study for > 6 months	PR: 5/19 (26%); SD: 10/19 (53%); Median Time to PSA progression: 161 days	8 pts remain on study for > 6 months	4/16 (25%) improvement in bone scan

Building on Measurable Results

Throughout 2008, we presented data from five ongoing Phase II trials of abiraterone at major scientific conferences, including the American Society of Clinical Oncology (ASCO) annual meeting in June 2008. In one Phase II study of chemotherapy-naïve patients who failed hormone treatment, 70% saw a decline in prostate-specific antigen (PSA) of 50% or more, while 25% had a 90% drop. In another Phase II trial of patients treated with CB7630 after failing chemotherapy, abiraterone generated PSA reductions of at least 50% in 47% of subjects.

REGRESSION OF HEPATIC METASTASIS



The reduction in the size of the hepatic metastases suggests the observations in bone can be extended to extrasosseous sites

POTENTIAL U.S. MARKET

One in six American men will be affected by prostate cancer in their lifetimes—it is the most frequently diagnosed cancer in men.

186,320 estimated new cases in the U.S. in 2008
650,000 U.S. men receiving first-line hormonal therapy for prostate cancer

Phase I/II: In Pursuit of Multiple Paths

“Abiraterone data continue to impress with further improvements in the percent of patients with PSA declines as well as time to PSA progression.”

JOEL SENDEK
LAZARD CAPITAL MARKETS
June 3, 2008

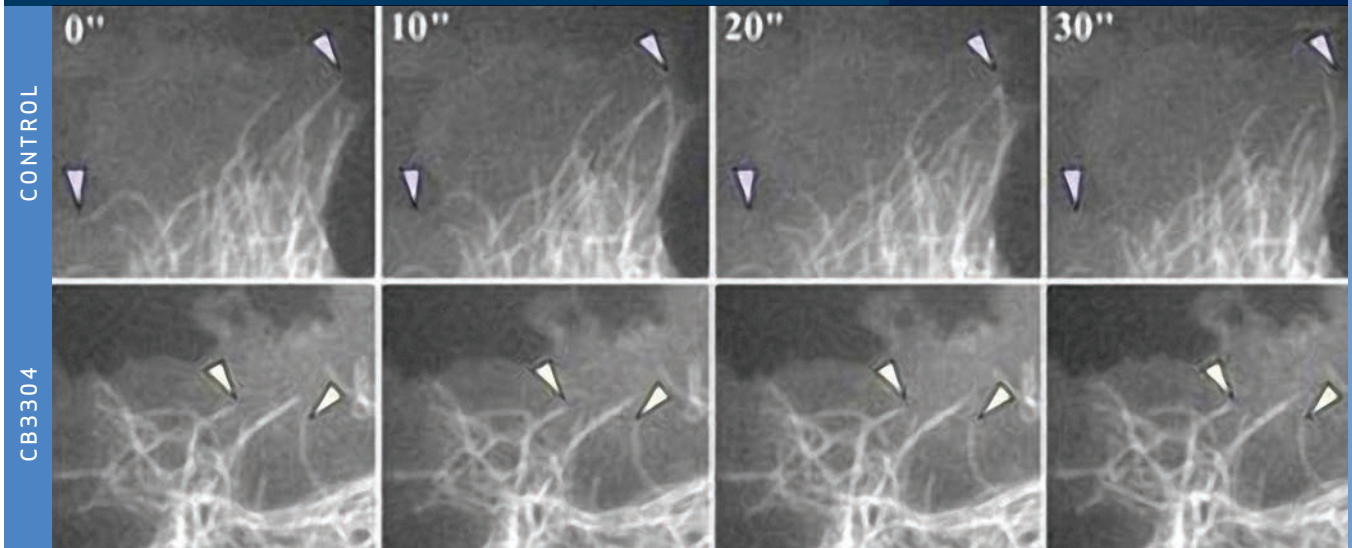
“We believe Cougar’s abiraterone is one of the most exciting molecules in prostate cancer in a long time and we remain encouraged by the positive data that have been presented so far.”

CAROLINE Y. STEWART
PIPER JAFFRAY & CO.
March 19, 2009

Our Phase I and Phase II clinical trials of abiraterone in advanced prostate cancer have demonstrated that abiraterone can produce a strong reduction in many of the androgens in the endocrinological pathway that may also play a role in the progression of another hormone dependent cancer: advanced breast cancer. According to the American Cancer Society, breast cancer is the most frequently diagnosed cancer in women, except for skin cancers. Cougar Biotechnology has taken its first steps to address this urgent need. In November 2008 we launched a Phase I/II study of abiraterone in women with advanced breast cancer.

The trial is being conducted at The Institute of Cancer Research in London and will involve 74 women with hormone-receptor positive advanced breast cancer who have failed at least two previous rounds of hormone therapy. We are committed to exploring abiraterone’s potential in treating this large unmet medical need.

EFFECT OF CB3304 ON MICROTUBULE DYNAMICS



CB3304: Hematological Diseases

The second product to advance in Cougar's pipeline is CB3304 (noscapine). Our Phase I/II trial of CB3304 in treating multiple myeloma progressed in 2008. Preclinical studies have shown that CB3304, an orally active alkaloid from opium, alters microtubule dynamics, blocks cell division (mitosis) and causes apoptosis (programmed cell death). We are also interested in looking into additional preclinical studies of CB3304's mechanism of apoptosis and its antitumor activity against multiple myeloma and renal cell carcinomas when combined with other neoplastic agents.

Gallery of video frames, 10 seconds apart, demonstrating the effect of CB3304 (noscapine) on microtubule dynamics (fixed pixel positions are marked with arrowheads). In control cells, microtubules alternated between phases of growth and shortening; therefore, the position of their plus ends changes significantly over time. In cells treated with CB3304, microtubule dynamics were suppressed; therefore, the position of their plus ends was unaltered.

CB 7630 & CB3304—POTENTIAL U.S. MARKETS



Scientific Advisory Board

We are gratified at Cougar Biotechnology to enjoy the guidance of some of today's most respected, knowledgeable clinicians in our efforts to identify innovative oncology treatments and bring them through the clinical trials process. These key opinion leading medical professionals bring invaluable experience, perspective and insight to our task.

Our search for novel therapies that potentially address significant unmet medical needs as well as meet significant market needs, has led Cougar to engage the best minds at major academic medical centers, university campuses and cancer research centers.

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Arie S. Beldegrun, M.D., F.A.C.S.

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The Richard T. Silver Distinguished Professor of Hematology and Medical Oncology, Professor of Medicine and Director, Hematology/Oncology Clinical Research Program, Weill Medical College of Cornell University; Clinical Director, New York-Cornell Center for Lymphoma and Myeloma

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