

**Information Memorandum**

**Analysts**

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## Joint Preservation Instead of Replacement - Technology Leader in Cartilage Regeneration

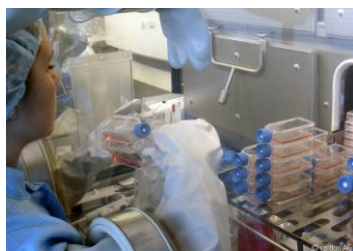
Personalized medical treatment is the watchword for the health care of the future. This means not only personalized diagnosis and prognosis. It also means personalized treatment considering each patient's unique physical constitution. This holds true not only for pharmaceutical treatments but also for regenerative, cell-based therapy.

For roughly two decades co.don AG has specialized in the regeneration of cartilage tissue, developing a patented and approved procedure for the extraction, cultivation and re-implantation of autologous cartilage tissue. Since 1997 the procedure has been marketed chiefly in Germany with more than 150 clinics, private practices and hospitals successfully providing its benefits to roughly 6,000 patients. To date the procedure (matrix-associated autologous chondrocyte transplantation or M-ACT) has mainly been applied to remedy cartilage defects of the knee and ankle, but increasingly it is also being used for hip, elbow and shoulder treatments. The number of patients treated also includes approximately 600 intervertebral disk cases; of around 100,000 herniated disks in Germany alone each year, approximately 10% could be handled with co.don technology. Since 2007 knee and hip treatments have been approved for full coverage by national and private insurance plans, which led to a significant increase in company revenues. Internal company calculations confirm that co.don technology makes financial sense for health care providers, offering financial incentives for application whenever medically feasible. Treatment of intervertebral disk damage has been approved since 2008.

Expert opinions estimate that market potential for co.don technology reaches approximately € 160 million in Germany alone; with European approvals this potential rises to over € 700 million. In this context, European approval is a significant corporate milestone for co.don AG. Currently, two studies are running to meet this European goal with projected completion slated for the year 2015. With this milestone, co.don AG would be the only German enterprise approved to offer M-ACT across all of Europe. Costs for these studies are estimated at around € 9 million.

As a minimally invasive procedure the importance of M-ACT can be expected to increase when compared to conventional treatments involving joint replacement.

**Cultivation of cartilage cells**



Source: co.don AG

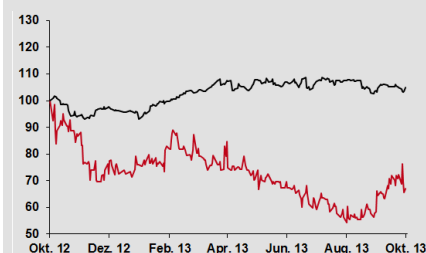
**3D-culture in suspended drops**



Sector	Pharma & Healthcare
WKN	A1K022
ISIN	DE000A1K0227
Bloomberg/Reuters	CNWK GY/CNWK.DE
Accounting standard	HGB
Financial year	Dec 31
Interim report Q3	18.10.2013
Market segment	Regulated Market
Transparency standard	General Standard

Operating figures (in € mln)			
	2010	2011	2012
Revenues	2.145	2.316	2.693
EBITDA	-1.319	-0.862	-2.262
EBIT	-1.443	-1.019	-2.404
Net result	-1.433	-1.010	-2.381

No. of shares (in ths)	11,109
MarketCap / EV (in € mln)	10.04 / 8.69
Free float (in %)	31.09
Ø daily trading volume (3M, in €)	4,166
12M high/low (in €)	1.35 / 0.73
Price Oct 11, 2013 (in €; close)	0.90
Performance	1M 6M 12M
absolute in %	14.4 -21.0 -28.3
relative in %	13.1 -19.0 -31.4
Benchmark index	DAXsector All Pharma & Healthcare



Co.don AG (red/grey) vs. DAXsector All Pharma & Healthcare Performance Index (black)

Source: Bloomberg

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## State of Technology

**State of the art technology and the highest standards of quality**

Proprietary research and development has led to third generation, cell-based autologous cartilage replacement therapy. With this approach, cartilage cells removed from the patient are cultivated and re-implanted in the patient's own blood serum as spheroids, that is, three-dimensional tissues without additional substrates. For this co.don AG has developed proprietary cell culture and clean room technology, which is - to the best of our knowledge - unique, worldwide. This technology represents the highest quality standards and meets regulatory requirements. This spheroid technology requires no additional biological or synthetic substrates since in the three-dimensional structure the cells develop their own matrix. This method most nearly approximates natural processes. As soon as twenty minutes after initiation, spheroids adhere to cartilage defects stably so that no additional adhesives, fixatives or membrane substrates are required.

**Benefits of co.don technology confirmed through clinical data**

First and second generation procedures such as those offered by some competitors are performed with the implantation of individual cells applied with the aid of cell suspensions or biological/synthetic substrates. The cells require an additional covering over the defective area consisting of periosteum (bone membrane) or other biological membrane (collagen).

The spheroid technology of co.don AG permits a minimally invasive, often purely arthroscopic procedure, while first and second generation procedures almost always require more significant, more invasive operations. Clinical data with over five years of observation attests to the fact that spheroid technology yields more rapid healing and rehabilitation as well as reduced pain, discomfort and swelling. Controlled clinical studies one year after treatment reveal that patients enjoying the benefit of spheroid technology are more active and experience improved quality of life. Furthermore, in contrast to alternative procedures, the exclusive use of autologous tissue, i.e. the patient's own cells (cartilage as well as serum for cell cultivation), is virtually devoid of unwanted side effects.

## Competition

We have identified four competitors in the German and European markets for cartilage regeneration treatments:

### **TiGenix NV, Leuven, Belgium**

The company has been listed on the Euronext exchange since 2007, marketing a cell-based product ChondroCelect, approved across Europe for autologous cartilage regeneration of the knee. Currently the product is marketed in the Benelux region as well as Germany, the UK, Finland and Spain. ChondroCelect applies first and second generation technology, i.e. the cell suspension is implanted in the treated area with and without the aid of a substrate.

### **Tetec AG, Reutlingen, Germany**

As a subsidiary of B. Braun, Tetec AG has the benefit of established marketing channels. The cell-based product line NOVOCART is marketed through the business unit "Aesculap," a medical technology and product vendor focusing on surgery and orthopedics. The product line is offered in Germany for the treatment of knee cartilage defects as well as herniated disks.

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## **Arthro Kinetics AG, Heidelberg, Germany**

With the brand name CaRes the company markets both a cell-based as well as a cell-free product. The cell-based product consists of autologous cells (from the patient) in a three-dimensional matrix.

## **Genzyme/Verigen, Neu-Isenburg, Germany (now: Sanofi SA)**

With the acquisition of Verigen AG in 2005, the company Genzyme obtained the ability to market M-ACT technology; marketing efforts include Germany. In spring 2011 the company has been integrated as a 100% subsidiary into the Sanofi Group by means of a hostile takeover.

**Given the significant market potential, we regard a competitive environment with just four vendors to be highly manageable. With its already well advanced studies for product acceptance across Europe, co.don AG has a clear marketing advantage, at least over its German rivals. Particularly in the lucrative market for cell-based intervertebral disk regeneration the company considers itself to be in head-to-head competition with the NOVOCART Disc product of the company TETEC.**

## **Marketing**

After cancelling its marketing agreement with Ormed GmbH effective 30 June 2013, the company has restructured its marketing organization with a new-found emphasis on internal efforts. As a result, the expertise of company personnel is taken advantage of to directly offer more thorough customer support and guidance in the field. Supplementary marketing efforts include participation in industry conferences such as the Berlin Cartilage Symposium (*Berliner Knorpelsymposium*) with presentations and discussions for experts in the field. The target audience at such events is particularly providers of regenerative cartilage treatments.

In June 2011 the company entered into an umbrella contract with Asklepios Clinics to provide co.don technology (co.don chondrosphere®) to patients. Overall in Germany, co.don AG commands a customer base of more than 150 treatment providers - from university clinics to private practices.

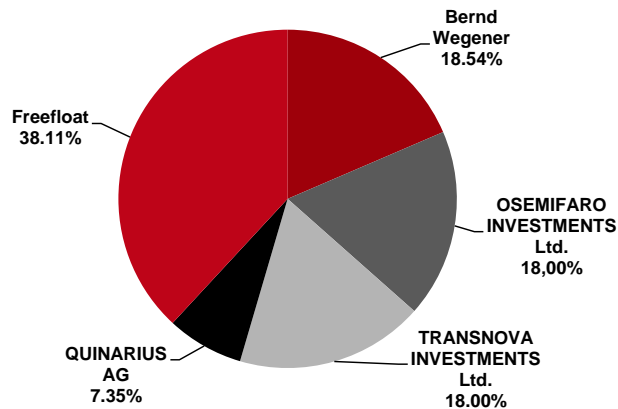
**New marketing strategy - single-source solution**

## **co.don's Stock**

Since the beginning of the year co.don stock has experienced a decline of 8.7% (closing price 11 Oct. 2013) while the relevant index (DAX Sector All Pharma & Healthcare) advanced 8.9%. Until the beginning of May, the stock price had been stable, hovering around the 1 € mark, and the retreat began only after that time. On 12 August the stock reached its twelve-month low at € 0.73 per share. Since that time, the price has recovered to a level of € 0.90 (closing 11 Oct. 2013).

Annualized volatility based on daily yield since the beginning of the year amounts to 58%, a relatively modest level compared to average trading volume of just 6,200 shares per day.

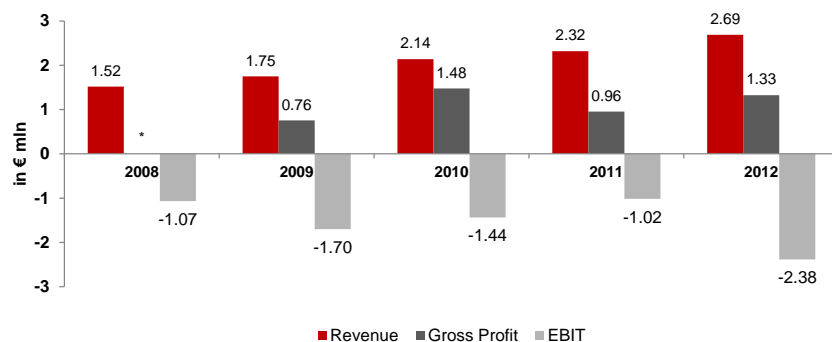
### Shareholder structure



Source: BankM

Dr. Bernd Wegener was named Chairman of the Supervisory Board in the year 2010. As Chairman of the Federal Association of the Pharmaceutical Industry (*Bundesverband der Pharmazeutischen Industrie*) he plays not only a valuable role in our company but also in the industry in general. In our opinion, the involvement of Dr. Wegener further confirms the potential of co.don technology.

### Historical Key Figures



\* Data not available

Although the company has yet to turn a profit, revenues have consistently increased over the years. As of 31 December 2012, liquidity amounts to € 2.8 million; according to statements in the 2012 Annual Report, the Management Board estimates that financing is currently sufficient through November 2014.

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**Authors: Dr. Roger Becker, CEFA und David Szabadvari, Analysts**

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**October 14, 2013**

**4. Date and time of prices of the instruments quoted in this document:**

**Prices as of October 11, 2013**

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