CytoTools AG

December 10, 2019

Basic Report

Analysts

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Evaluation Result

BUY

Initiation of Coverage

Fair Value

€25.28*

***After taking into account model-implicit dilution**

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Next Milestone: European Phase III

With the production release of its active substance DermaPro in October, CytoTools AG* has now overcome all hurdles for the marketing authorization in India so that the drug can now be produced and sold (under the name Woxheal) in this market for the indication "diabetic foot". Together with its Indian license partner Centaur, the company had already built up production capacities in India in 2017 following approval, but these have only now been approved by the authorities. The first license revenues from marketing are therefore expected as early as the beginning of 2020. We regard the final approval by the Indian authorities as a convincing reference for approval in other important pharmaceutical markets.

After the identical active substance in a clinical phase III study for the European approval "Diabetic Foot" did not show the expected effect due to a production error on the part of the contract manufacturer (the concentration of the active substance was formulated much too low), this study has to be repeated. First results are expected in 2020, we expect approval in 2022 and, for reasons of caution, market launch in 2023. The costs of the study are estimated at approximately €6 million. Since the further issue of convertible bond tranches did not receive a majority at the last AGM, we assume that a capital increase will be required to finance the study. In view of the current liquidity of approximately €4 million and the lean cost structure (T€650 p.a.), this should amount to approximately €2.5 million. Furthermore, the start of a European phase III study for the indication "open leg" is planned for 2020, with costs of about €5.5 million. The funds required for this are being recruited from the "India proceeds" and a further capital increase.

In addition to the main product DermaPro of the 62% subsidiary DermaTools Biotech GmbH, CytoTools AG with its second subsidiary Cytopharma GmbH (50% share) has an innovative preclinical pipeline in important indications, including sepsis ("unmet medical need") and oncology. Patent protection exists for all active substances in the most important pharmaceutical markets, for DermaPro until 2033.

In our DCF-based valuation we conservatively consider only revenues from the marketing of DermaPro in the indication diabetic foot. Future and, due to the existing study data, regulatory simplified approvals in the area of further chronic wounds are not included in our valuation, nor are developments from the preclinical pipeline of the subsidiary Cytopharma.

Note: In the entire text and in the financial section we consider CytoTools AG and its subsidiaries DermaPro Biotechnologie GmbH and Cytopharma GmbH as "as if group" unless otherwise stated.

Key data / Earnings

Year	Sales	EBITDA	EBIT	EBT	Net result	EPS (€)	EBIT margin	Net margin
2018a	0.0	-1.2	-1.2	-1.4	-1.4	-0.53	neg.	neg.
2019e	0.0	-1.3	-1.3	-1.3	-1.3	-0.32	neg.	neg.
2020e	1.2	-3.2	-3.3	-3.3	-3.3	-0.74	neg.	neg.
2021e	3.5	-3.4	-3.5	-3.5	-3.5	-0.79	neg.	neg.
2022e	5.8	-1.1	-1.2	-1.2	-1.2	-0.27	neg.	neg.
2023e	21.0	17.5	17.4	17.4	15.3	3.49	83.1%	73.1%

Source: CytoTools AG (a), BankM Research (e)

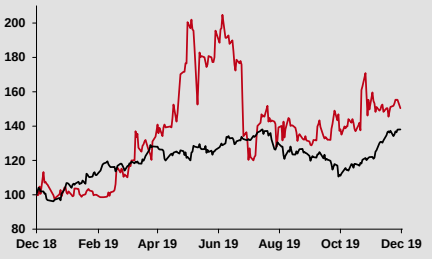
Sector	Pharma/Biotech
WKN	A0KFRJ
ISIN	DE000A0KFRJ1
Bloomberg/Reuters	T5O GY/T5OG.DE
Accounting standard	German GAAP (HGB)
Financial year	Dec 31
Financial reporting Q1	May, 2020
Market segment	Open Market
Transparency standard	Basic Board

Financial ratios	**2020e**	**2021e**	**2022e**	**2023e**
EV/Sales	24.2	8.1	4.8	1.3
EV/EBITDA*	neg.	neg.	neg.	1.6
EV/EBIT	neg.	neg.	neg.	1.6
P/E adj.	neg.	neg.	neg.	1.9
Price/Bookvalue	1.2	1.4	1.5	0.8
Price/FCF	neg.	neg.	12.0	2.0
ROE (in %)	neg.	neg.	neg.	57.6
Dividend yield (in %)	0.0	0.0	0.0	0.0

Number of shares outs. (in mln)	3.997
MarketCap / EV (in €mln)	28.61 / 27.90
Free float (in %)	59.0
Ø daily trading vol. (3M, in €ths.)	70.0
12M high / low (in €; close)	14.50 / 6.92
Price Dec. 9, 2019 (in €; close)	10.65

Performance	1M	6M	12M
absolute (in %)	0.5	-23.1	50.4
relative (in %)	-11.2	-29.8	10.3

Benchmark index Daxsubsec. All Biotechnology Perf.



CytoTools AG (red) vs. DAXsubsector All Biotechnology Performance (black)
Source: Bloomberg

Content

Investment Case

Prompt market entry in India, with good prospects of expanding the indication

The market approval of DermaPro in India in October 2019 under the trade name Woxheal represents a significant milestone in the development of the company. The approval is currently still limited to the indication diabetic foot, however, due to the regulatory framework in India, an indication extension to the treatment of the open leg can be achieved with comparatively little effort (within the framework of a phase IV study to be carried out by the partner Centaur). In this case the number of applications will increase significantly. CytoTools participates on the revenue side within the framework of a licence agreement both in the manufacture of the drug in an Indian production plant and in sales.

Central objective: Pivotal Phase III Europe

The next major step is now the two pivotal European Phase III studies in the indications "diabetic foot" and "open leg". Based on the positive results from phase II so far and not least due to the successful approval in India, we expect the studies to proceed positively. According to the literature, the probability that an active ingredient will receive approval in phase III is estimated at 60-70% (phase transition model, all pathologies).[1] This transition probability is also taken into account in our valuation model and, based on the reference approval in India, we assume a 70% probability of success for the two European phase III studies and a 60% probability of success for the USA.

Large market with potential expansion of indications

The clinical picture of "chronic wounds" represents an "unmet medical need".[2] The target markets in the outlined definition "diabetic foot" and "open leg" are already very large in view of the demography and prevalence of diabetes. The addressable market becomes considerably larger when the potential of DermaPro in the treatment of the clinical pattern of "chronic wounds" is considered in its entirety. The addressable market volume worldwide amounts to more than €7 billion. The healing rates with DermaPro proven in clinical studies lead to a drastic reduction in the total treatment costs for health insurance companies which currently pay for permanent to lifelong compression therapy. With DermaPro as an approved drug, we expect high-margin gross sales in the lower three-digit million range in Europe with a gradually increasing market share.

Capital increase of €2.5 million required for financing Phase III "Diabetic Foot"

In order to finance the European Phase III study "Diabetic Foot", which has been prioritized in terms of time, as well as working capital, the Company requires - in addition to the existing liquidity of approximately €4 million - approximately €2.5 million in equity, corresponding to an increase in share capital of approximately 7% (based on an assumed issue price of €10). In our model, we also assume that the Company will commence European Phase III "Open Leg" trials in 2020 and clinical trials in the U.S. in 2021, with the respective capital requirements for this being a mixture of free cash flow and capital increase.

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[1] Thomas, David W. et al. (2016): *Clinical Development Success Rates 2006-2015*. https://tinyurl.com/vzcu8wj [November 13, 2019].

Chi Heem Wong, Kien Wei Siah, Andrew W Lo (2019): *Estimation of clinical trial success rates and related parameters*. Biostatistics, Vol. 20 (2), pp. 273-286. https://academic.oup.com/biostatistics/article/20/2/273/4817524 [November 13, 2019].

Arzneimittel: Von der Entwicklung bis zur Zulassung (2017). https://www.sciencemediacenter.de/fileadmin/user_upload/Fact_Sheets_PDF/Arzneimittel_Entwicklung-bis-Zulassung_SMC-Fact-Sheet_2017-12-01.pdf [November 13, 2019].

[2] Neri, Luca et al. (2016): Chronic wounds: unmet medical needs. Acta Vulnologica Vol. 14(4), pp.171-85 [November 13, 2019].

SWOT Analysis

Strengths

- Approval and final production release of DermaPro/Woxheal in India is a convincing reference for approvals in other countries.
- Regular, secure revenue inflows from India without additional costs.
- Formal requirements fulfilled for two pivotal studies for European approval in two indications with a real medical need and high sales potential, phase III in preparation.
- Lean cost structure of the holding company.
- Experienced management with a scientific background and expertise in the capital market.

Weaknesses

- Financing of the European phase III trial(s) is not yet secured - Lapse of the financing option through convertible bond.
- Should the capital increase be carried out without subscription rights, existing shareholders will experience a corresponding dilution.
- There is no reimbursement system in India, so the treatment must be privately paid. (Nevertheless, this "deficit" is compensated, at least partially, by the enormous number of patients).

Opportunities

- Global increase in diabetes as well as demographic trends will increase the number of patients with diabetic foot and open leg.
- Expansion of indications to include other indications in the field of "chronic wounds".
- Approval in other important pharmaceutical markets, particularly China and the United States.
- Further expansion of the stake in the subsidiary DermaTools increases the value of the holding company.
- Subsidiary Cytopharma has an innovative pipeline in the indication areas of sepsis and oncology (not subject of the valuation).

Risks

- Future innovations in the field of active substances and also in regenerative medicine (e.g. stem cell therapies) may intensify the competitive profile.
- Even after positive results of the pivotal phase III studies, approval (planned for 2022) and market entry (planned for 2023) in Europe may be delayed.
- The CROs commissioned to conduct the European studies usually insist on a payment guarantee; this is dependent on the success of the capital measures assumed in our model.
- Inclusion in the reimbursement catalogue of health insurers could prove to be a lengthy process. Price negotiations with the cost bearers may prove unfavourable.

Company Profile

Business Model

The listed CytoTools AG is a technology holding company with two holdings in the biopharma and biotechnology sector. The research and development activities are carried out at the level of the subsidiaries, the holding company is essentially entrusted with the procurement of capital and the control of the operative activities of the subsidiaries and participates in the future results via a financial participation in accordance with its shareholding. The purpose of the subsidiaries is to develop innovative products with the aim of marketing these products. DermaTools GmbH is currently closest to this goal and is therefore the focus of current development activities.

Innovative pipeline of the subsidiaries

The subsidiaries are accounted for at equity as financial assets. The book value of the investments amounts to €15.2 million (June 30, 2019), of which DermaTools Biotech GmbH accounts for approximately 85% and Cytopharma GmbH for 15%. The 62% subsidiary DermaTools Biotechnologie GmbH currently represents the value driver with the development of the active substance DermaPro.

Cytopharma GmbH, in which the holding company holds a 50% stake, develops innovative active ingredients in the field of oncology and sepsis. For the life-threatening clinical picture of sepsis, there is currently no therapeutic option other than intensive care measures with high-dose antibiotics. With a mortality rate of 30-50%, this indication is undoubtedly an "unmet medical need". Initial pre-clinical trials in mice with the active substance diperoxochloric acid, the same active substance as in DermaPro, are very promising; pilot clinical trials in humans are scheduled to begin in 2020. The oncological project with a patented peptide is still in a very early pre-clinical phase. Both areas, sepsis and oncolgy, have enormous market potential. For Cytopharma's projects, which are still at a relatively early stage, the Company is open to R&D partnerships to facilitate further financing of its projects.

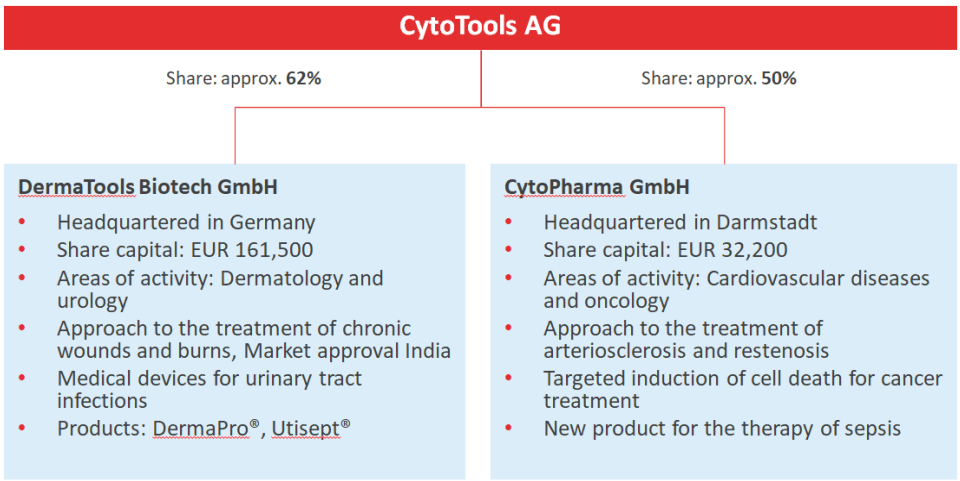
The following figure shows the current clinical and pre-clinical portfolio of the two subsidiaries:

Products and Pipeline

Product	Market	Pre-Clinical	Phase I	Indication	Phase II	Phase III
DermaPro®	Diabetic foot ulcer	India	Market approval received			
DermaPro®	Diabetic foot ulcer	Europe	Phase III			
DermaPro®	Venous leg ulcer	Europe	Phase II (Phase III in preparation)			
Derma MP	Chronic wounds	Europe	CE certification (Medical Product)			
CardioClean® (HMW 02Ap/Ak)	Restenosis, diabetis, carotis-stenosis		Pre-Clinical			
Cancer T17-n	Cancer	Europe	R & D			
Utisept®	Urinary tract infections		CE certification (Medical Product)			

Source: CytoTools AG

Company Structure



Strategy

Sales partnerships as a probable strategy

With the active compound DermaPro (Woxheal in India), the company entered early into a licensing partnership with the Indian pharmaceutical company Centaur. We assume that a similar strategic partnership with a strong sales partner will be pursued for the marketing of the active ingredient in Europe. The alternative, namely to establish an own sales force, is likely to exceed the company's resources in the short and medium term and - assuming a fair partnership - will not offer any real, risk-adjusted economic advantages. The partnership model in the form of licensing agreements should also be a model for other regions (in the future, the USA and China, among others, are targeted). CytoTools AG keeps the option open to sell its stake in DermaTools as a whole, but only when the approvals in Europe and/or the USA have led to an expected significant increase in value of the subsidiary. As already indicated, it can be assumed that the active substance DermaPro will successively be extended to include **the entire field of chronic wounds**.

Product and clinical Development

Prompt start of Phase III in Europe

DermaPro for the treatment of chronic wounds has been tested in several clinical studies for its effectiveness and tolerability. In October 2019, the drug for the treatment of the diabetic foot was officially approved in India; marketing is expected to begin as early as the beginning of the 2020 financial year. Two European phase II studies (efficacy, tolerability and dose-finding) were successfully completed, so that approval of two phase III studies (diabetic foot and open leg) by the EMA can be expected in the near future. The selection of the study centres has already begun, so that the recruitment of the patients required for the studies can begin without delay.

Superior efficacy

In both the Indian phase III study and the European phase II studies, treatment with DermaPro led to wound healing in over 90% of patients within ten to twelve weeks. "Healing" in this context means that more than half of the wound is closed after treatment; the Indian study showed complete wound closure in 76% of cases. Thus treatment with DermaPro is shown to be significantly superior to conventional therapy with wound dressings and fulfils the most important target parameter of complete wound closure which is now required by the regulatory authorities.

Important hurdle taken towards FDA

With the successful dose-finding study this year, a central requirement of the American regulatory authority FDA has been fulfilled. In this respect, there are no longer any major formal obstacles to applying for Phase III approval in the USA.

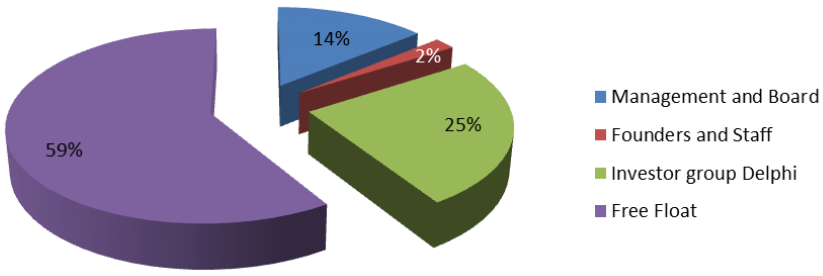
Management

CytoTools AG is managed by the two board members Dr. Mark-André Freyberg and Dr. Dirk Kaiser.

Dr. Freyberg is responsible for financing and for marketing of the products. As co-founder of CytoTools AG, he coordinated the research activities and was responsible for the first successful financing rounds. Dr. Freyberg was able to secure numerous grants from the Federal Ministry of Education and Research (BMBF) for CytoTools and achieved the "proof of concept" of the preceding basic research in three animal models. He was significantly involved in the foundation of DermaTools Biotech GmbH in 2004 and the foundation of CytoPharma GmbH in 2006. After completing his studies in 1995 as a graduate biologist with a focus on microbiology, Dr. Freyberg received his doctorate at the Technical University of Darmstadt in the fields of biochemistry and biotechnology.

Dr. Kaiser coordinates the extensive research and development work within the subsidiaries and is responsible for the organization and control during the execution of clinical studies. Dr. Dirk Kaiser, co-founder of CytoTools, has been a member of the management board since 2000. He is also responsible for the scientific development work of the active substances and the consistent maintenance and expansion of the patent portfolio. He studied chemistry at the Technical University of Darmstadt with the emphasis on biochemistry and received his doctorate in 2000 at the Institute of Biochemistry at the Technical University of Darmstadt.

Shareholder Structure



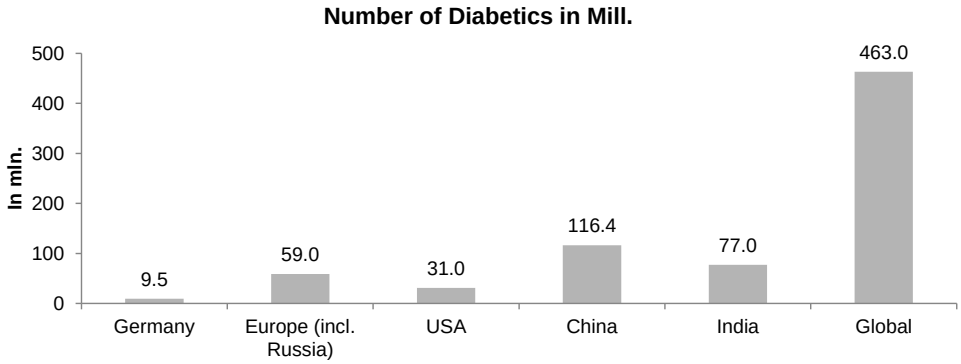
Source: CytoTools AG

Market and Competition

Market Overview

1. Diabetic Foot

The widespread disease diabetes is the name-giving basic disease for the development of the diabetic foot. Based on epidemiological data, the number of patients with this secondary disease can be approximated on the basis of the number of diabetes cases. The following figure does not take into account undiagnosed cases (dark figure); this lies between 38 and 57%, depending on the region, with a global average of 50%.



Source: IDF Diabetes Atlas, 9th edition 2019

In a broader geographic context, the growth rates up to 2045 are 51%, 15%, 33%, 31%, 31% and 74%, respectively, for "Global", Europe, North America & Caribbean, Western Pacific and Southeast Asia according to estimates by the International Diabetes Foundation (IDF Diabetes Atlas, 9th edition 2019).

The IDF estimates that there are 40 - 60 million patients with diabetic foot worldwide. This corresponds to a worldwide prevalence (frequency) of about 9-13%. The annual incidence of new cases is about 2%.

According to concordant figures from the German Diabetes Society, the German Diabetes Aid and the Diabetes Information Service Munich, 2-10% of diabetics in Germany develop a diabetic foot with an annual rate of 2-6% of new cases. In India, the first market with approval of DermaPro, the incidence is up to 15%, depending on the source.[3]

[3] Shahi, S.K. et al. (2012): Prevalence of Diabetic Foot Ulcer and Associated Risk Factors in Diabetic Patients From North India. The Journal of Diabetic Foot Complications, Vol. 4, Issue 3 (4), pp. 83-91.

2. Chronic Wounds

Chronic wound patients are generally older, as the prevalence increases with age (Research Group for Primary Medical Care (PMV) Cologne, 2016). Appropriate treatment protocols for chronic wounds lead to healing within four months in 50% of cases, 20% do not heal within two years and 8% do not heal after five years.[4]

Definition: A wound is chronic if it does not heal within 8 weeks
(Wound Management 2017, 11 (2), p. 81)

Competition

The gold standard of therapy for the diabetic foot and open leg is compression therapy with moist bandages (hydrogels). These enable the venous blood pressure in the affected areas of the body to be maintained and thus ensure sufficient blood supply and supply the tissue with oxygen and nutrients. Although the healing rate and duration of the treatment vary greatly (see above), compression bandages will continue to exist as monotherapy for a longer period of time and as such will compete directly with new approaches such as treatment with DermaPro. However, the degree of competition will be reduced if the combination therapy "Compression plus DermaPro" is increasingly accepted.

Very limited competition at the active compound level

Regarding the level of active compounds, we are aware of two products for the treatment of diabetic foot, Granulox and Regranex. The hemoglobin spray Granulox is distributed by the Swedish pharmaceutical company Mölnlycke. The medical product was initially out-licensed by Sangui BioTech GmbH to SastoMed GmbH, which was later acquired by Mölnlycke. On December 4, 2019, the company announced the commencement of a multi-center Phase III study for the indication "open leg". Regranex is a recombinant fibroblast growth factor developed by Chiron and J&J. The drug is suspected of promoting tumor growth after prolonged use.

Pharmaco-economic Consideration

Taking the example of therapy costs in Germany for the diabetic foot and for chronic wounds in general, we compare the costs of conventional treatment with treatment with DermaPro.

Based on data from the Techniker Krankenkasse, the costs for the treatment of diabetic foot per patient are approximately €2,300 in the first year after diagnosis and approximately €1,400 for each subsequent year. According to study reports, the medical costs across all chronic wounds in Germany are between €9,060 and €9,569 per patient and year. For both patient collectives, the largest part of the treatment costs (75%) consists of the three blocks: Wound dressings/compresses (23%), outpatient (14%) and inpatient (37%) care.[5]

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[4] Romanelli, M. et al.: Wirtschaftliche Belastungen durch schwer heilende Wunden. S. 15-17. In: European Wound Management Association (Hrsg.). Positionsdokument: *Schwer heilende Wunden: ein ganzheitlicher Ansatz*. London: MEP Ltd., 2008.

[5] Kähm, K. et al. (2018): Health care costs associated with incident complications in patients with Type 2 Diabetes in Germany. Diabetes Care 41 (5), p. 971-978.

Deutscher Gesundheitsbericht Diabetes 2019.

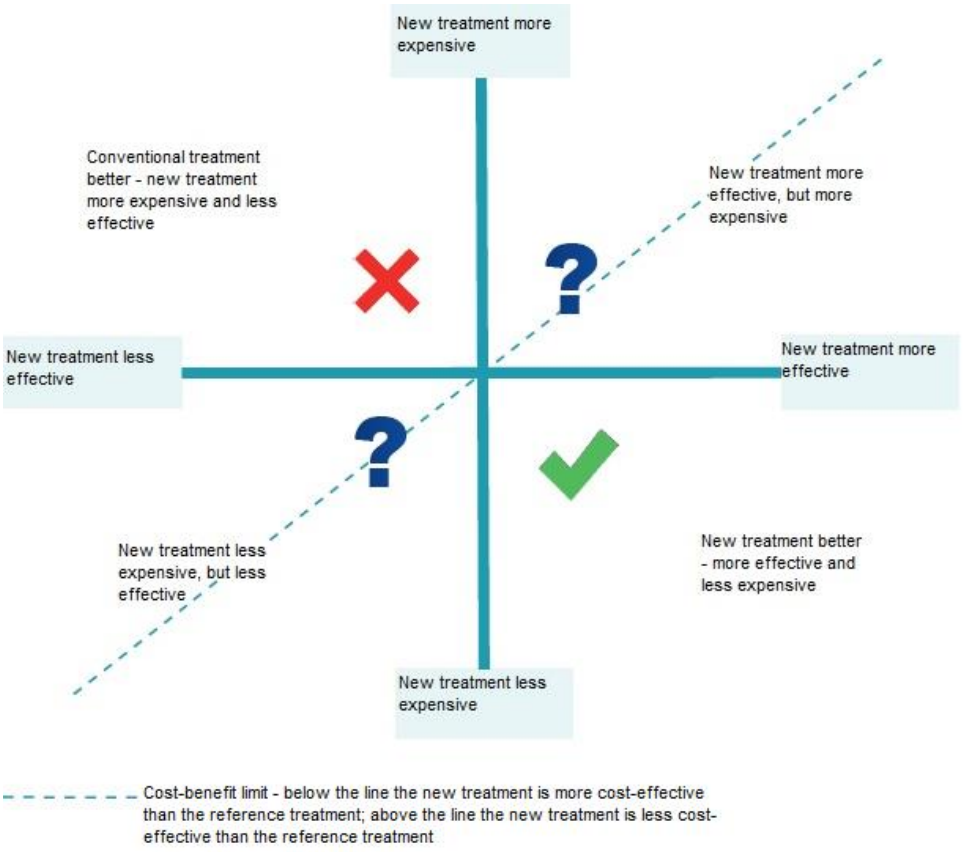
Gesellschaftspolitische Kommentare: Chronische Wunden. Jg. 57, Sonderausgabe Nr. 2, 2016, p. 3 and p. 10.

Significant cost reduction with DermaPro

In comparison to these high treatment costs, treatment with DermaPro is considerably cheaper. According to the company, a treatment cycle of eight weeks amounts to approximately €1,000. The studies carried out prove complete wound closure after ten weeks and thus lead to a significant reduction in the above-mentioned cost blocks. This degression should be of interest to all health insurance companies and make the DermaPro therapy procedure a reimbursable health service. This is also certainly of economic relevance in countries with a pure private coverage of costs.

Efficiency pressure in the health care system

Analyses of cost-effectiveness both on the part of the funding agencies and the treating physicians and hospitals are of great relevance, especially in wound management. In view of rapidly rising health care costs, improving cost efficiency is therefore constantly on the agenda of these parties. In general, absolute priority must be given to new treatment methods that lead to better results at lower costs. According to this paradigm, treatment with DermaPro is to be located in the lower right quadrant of the cost/efficiency matrix.



Source: Internationaler Konsens. Begründung für ein kosteneffizientes Wundmanagement. Wounds International 2013, p. 8. Translation: BankM Research

Financial Analysis and Discussion

Our model only considers the potential of the active compound DermaPro in the indication "diabetic foot". We justify this with the fact that the active substance has already been approved for this indication in India, which gives our forecasts a higher degree of plausibility. We have not currently taken into account future revenues from the indication "open leg" and from the application in the entire spectrum of the overriding pathology "chronic wounds" (including decubitus). Nevertheless, we see an immense upside in these applications.

Profit and Loss Account

Modeling of revenues via licensing

As in the case of the marketing of DermaPro in India, we are assuming a partnership for sales in Europe and the USA. While in the case of India we expect license proceeds of 10% of sales due to the early takeover of risk by the partner Centaur, we assume a participation of 25% in the case of the next distribution partner due to the reduced risk. For three markets we have made general assumptions regarding market penetration and prevalence and weighted them with probabilities of success (see table and chapter "Investment Case"). The data on prevalence and incidence range widely between 2 and 10%[6], depending on the geographical region and age groups studied. The prevalence of 2.5% we assume for Europe and the USA is based on epidemiological data from Germany.[7] The prevalence for India is conservatively estimated at 7.5%, based on ambiguous literature data, which assume up to 15% (see Market and Competition). For India as the first market we also assume an initial lower market penetration of 2.5%.

Derivation of the relevant market size

To derive the market size for the diabetic foot we choose as a starting point the number of patients with the primary disease diabetes in the three regions we consider.

Net revenue model "Diabetic Foot"

		2020	2021	2022	2023	2024	2025	2026
in €mln.								
Sales in India		**1.2**	**3.5**	**5.8**	**8.1**	**10.4**	**12.7**	**15.0**
No. of Diabetics (mln)	**77.0**							
Prevalence "Diabetic Foot"	***7.5%***							
Market penetration		*2.5%*	*7.5%*	*12.5%*	*17.5%*	*22.5%*	*27.5%*	*32.5%*
Licence fees DermaTools	***10%***							
Selling price (in €)	***80***							
Probability of success	***100%***							
Sales in Europe					**12.9**	**25.8**	**38.7**	**51.6**
No. of Diabetics (mln)	**59.0**							
Prevalence "Diabetic Foot"	***2.5%***							
Market penetration					5%	10%	15%	20%
Licence fees DermaTools	***25%***							
Selling price (in €)	***1,000***							
Probability of success	***70%***							
Sales in USA						**8.7**	**17.4**	**26.2**
No. of Diabetics (mln)	**31.0**							
Prevalence "Diabetic Foot"	***2.5%***							
Market penetration						*5%*	*10%*	*15%*
Licence fees DermaTools	***25%***							
Selling price (in €)	***1,500***							
Probability of success	***60%***							
Total net sales		**1.2**	**3.5**	**5.8**	**21.0**	**44.9**	**68.9**	**92.8**

Source: BankM Research and cited literature

[6] Morbach, S. et al.: Diagnostik, Therapie, Verlaufskontrolle und Prävention. In: W.A. Scherbaum und Th. Haak (Hrsg.). Evidenzbasierte Leitlinie der Deutschen Diabetes-Gesellschaft, 2008.

[7] Prävalenz von Diabetischem Fußsyndrom und Amputationen bei DFS-Patienten nach Bundesland im Jahr 2010, Statista.

We have estimated sales revenues on a net basis, i.e. as pure license revenues - assuming that the distribution is carried out via a partner.

"as if group" approach

Since we consider CytoTools and DermaTools Biotech GmbH as a group, the costs for the clinical studies, which we are accruing for the estimated duration of the studies over three years, are listed under "other operating expenses". [At the holding level, this represents cash flow from investing activities, since the funds raised from the capital increases carried out by the holding company are passed on to the subsidiary for operating activities - with an increase in interest]. A significant cost of materials only arises with the start of production of the active compound within the framework of the European market launch of DermaPro which is assumed for 2023.

We have not taken into account the use of carry-forward losses for tax purposes.

Profit and Loss Account

Fiscal Year Dec. 31 (HGB)	2018a	2019e	2020e	2021e	2022e	2023e
in € ths.		"as if" Group				
Net sales	**1**	**1**	**1,155**	**3,465**	**5,775**	**20,991**
Growth rate (in %)		*0.0*	*n.a.*	*200.0*	*66.7*	*263.5*
Cost of materials	0	0	0	0	0	420
in % of total sales	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*2.0*
Gross profit	**1**	**1**	**1,155**	**3,465**	**5,775**	**20,571**
Other operating income	2	0	0	0	0	0
Personnel expenses	438	452	550	570	587	605
in % of total sales	*n.a.*	*n.a.*	*47.6*	*16.5*	*10.2*	*2.9*
Other operating expenses	758	800	3,833	6,333	6,333	2,500
in % of total sales	*n.a.*	*n.a.*	*331.9*	*182.8*	*109.7*	*11.9*
EBITDA	**-1,193**	**-1,250**	**-3,228**	**-3,438**	**-1,145**	**17,467**
Depreciation and amortization	30	30	30	30	30	30
EBIT	**-1,223**	**-1,280**	**-3,258**	**-3,468**	**-1,175**	**17,437**
Interest income	53	0	0	0	0	0
Interest expense	251	0	0	0	0	0
EBT	**-1,421**	**-1,280**	**-3,258**	**-3,468**	**-1,175**	**17,437**
Taxes on Income (Exp.+/Inc.-)	0	0	0	0	0	2,092
Net profit	**-1,422**	**-1,280**	**-3,258**	**-3,468**	**-1,175**	**15,344**
No. of shares (diluted)	2,686	3,997	4,394	4,394	4,394	4,394
Net profit / share (EPS, diluted)	-0.53	-0.32	-0.74	-0.79	-0.27	3.49

Source: CytoTools AG (a), BankM Research (e); 2018a CytoTools AG, from 2019 onwards “as if” Group

P&L Margins

Margins (in %)	2018a	2019e	2020e	2021e	2022e	2023e
Gross profit margin	100.0	100.0	100.0	100.0	100.0	98.0
EBITDA margin	neg.	neg.	neg.	neg.	neg.	83.2
EBIT margin	neg.	neg.	neg.	neg.	neg.	83.1
EBT margin	neg.	neg.	neg.	neg.	neg.	83.1
Net profit margin	neg.	neg.	neg.	neg.	neg.	73.1

Cash Flow Statement

The cash flow statement is dominated by capital measures to finance the two European phase III studies and a phase III study for the indication "diabetic foot" in the United States. We assume that a parallel phase III trial of the "open leg" indication will be conducted in the U.S., but have not taken this into account in our cash flow forecast.

The pronounced negative operating cash flows in 2020 and 2021 result from pre-payments to the CROs (Clinical Research Organisation), who are commissioned to conduct the studies. We assume here an upfront payment of 50% of the costs for the two European studies, i.e. €5.75 million in 2020 and €3.75 million in 2021 for the US study.

According to our model, the year 2023 marks the market entry of DermaPro in Europe, combined with considerable operating cash inflows.

Positive cash flow not before 2022

Cash Flow Statement

Fiscal Year Dec. 31 (HGB)	2018a	2019e	2020e	2021e	2022e	2023e
in € ths.		"as if" Group				
EBT	**-1,422**	**-1,280**	**-3,258**	**-3,468**	**-1,175**	**15,344**
+ Depreciation and amortization	30	30	30	30	30	30
+ Chg. in long-term provisions	-2	0	0	0	0	0
= Cash Earnings	**-1,394**	**-1,250**	**-3,228**	**-3,438**	**-1,145**	**15,374**
- Chg. in net working capital	82	-62	5,846	-1,808	-3,558	1,268
+ Financial result	198	0	0	0	0	0
+ Others	16	0	0	0	0	0
= Operating Cash Flow	**-1,262**	**-1,189**	**-9,075**	**-1,631**	**2,412**	**14,106**
- Capex	3,296	30	380	30	30	30
= Free Cash Flow	**-4,558**	**-1,219**	**-9,455**	**-1,661**	**2,382**	**14,076**
+ Increase in share capital	1,484	2,500	7,000	0	0	0
- Bank and other loans	4,400	5,955	0	0	0	0
- Redemption of Convertible Bond	500	1,100	0	0	0	0
+ Other net items (financial result)	198	0	0	0	0	0
- Outflow from share buybacks	0	2,122	0	0	0	0
= Cash Flow from Financing Activities	**5,186**	**5,233**	**7,000**	**0**	**0**	**0**
Incr. in Cash (+)/Decr. in Cash (-)	**628**	**4,014**	**-2,455**	**-1,661**	**2,382**	**14,076**

Source: CytoTools AG (a), BankM Research (e); 2018a CytoTools AG, from 2019 onwards “as if” Group

Balance Sheet

In the balance sheet of the holding, DermaTools Biotech GmbH and Cytopharma GmbH are reported at equity as financial assets. In our forecast, however, we model an "as if" consolidated balance sheet - analogous to the income and cash flow statement. Therefore, the amount of financial assets recognized at the holding company level is shown for information purposes.

To determine the number of shares in the years of the capital increase, we assume an issue price of €10 in 2019, which roughly corresponds to the current share price level; in 2020 we expect an issue price weighted equally by the current share price level and our fair value.

As already described in the "Cash flow statement" section, we have provided for advance payments to the appointed CROs in current assets, which are accrued in the income statement and hence released.

Debt-free balance sheet

After June 30, 2019, all remaining convertible bonds were converted into equity. The company is not indebted and therefore has a very high equity ratio of approximately 98%.

Balance Sheet

Fiscal Year Dec. 31 (HGB)	2018a	2019e	2020e	2021e	2022e	2023e
in € ths.		"as if" Group				
Assets						
A. Total Fixed Assets	**13,386**	**13,386**	**13,736**	**13,736**	**13,736**	**13,736**
I. Intangible assets	75	75	425	425	425	425
II. Tangible assets	15	15	15	15	15	15
III. Financial assets	13,297	13,297	13,297	13,297	13,297	13,297
For information: CytoTools AG level	*13,297*	*15,424*	*22,424*	*22,424*	*22,424*	*22,424*
Total Current Assets	**2,751**	**6,704**	**10,095**	**6,627**	**5,451**	**20,796**
I. Accounts receivable	62	0	96	289	481	1,749
II. Liquid funds	2,689	6,704	4,249	2,588	4,970	19,047
III. Pre-payments (CROs)	0	0	5,750	3,750	0	0
C. Accruals	**235**	**235**	**235**	**235**	**235**	**235**
Balance Sheet Total	**16,372**	**20,325**	**24,067**	**20,598**	**19,423**	**34,767**
Shareholder's Equity / Liabilities						
A. Shareholders Equity	**13,505**	**19,880**	**23,622**	**20,153**	**18,978**	**34,322**
I. Subscribed capital	2,686	3,997	4,394	4,394	4,394	4,394
Treasury shares	0	-178	-178	-178	-178	-178
II. Share premium	24,221	33,042	39,646	39,646	39,646	39,646
III. Retained earnings/losses	-13,402	-16,982	-20,240	-23,708	-24,884	-9,540
B. Provisions	**52**	**52**	**52**	**52**	**52**	**52**
C. Liabilities	**2,816**	**393**	**393**	**393**	**393**	**393**
t/o long term	916	0	0	0	0	0
t/o short term	1,900	393	393	393	393	393
Balance Sheet Total	**16,372**	**20,325**	**24,067**	**20,598**	**19,423**	**34,767**

Source: CytoTools AG (a), BankM Research (e); 2018a CytoTools AG, from 2019 onwards “as if” Group

Balance Sheet Ratios

In % of Balance Sheet Total	2018a	2019e	2020e	2021e	2022e	2023e
Total Fixed Assets	81.76	65.86	57.08	66.69	70.72	39.51
Total Current Assets	18.24	34.14	42.92	33.31	29.28	60.49
Shareholder's Equity	82.48	97.81	98.15	97.84	97.71	98.72
Total Liabilities	17.52	2.19	1.85	2.16	2.29	1.28
Long Term Liabilites	5.91	0.25	0.21	0.25	0.27	0.15
Short Term Liabilities	11.60	1.94	1.63	1.91	2.03	1.13

Valuation

DCF Analysis

For the analysis of Free Cash Flows we have applied a 3-stage model:

Phase I	2019 - 2022 (short-term planning horizon)
Phase II	2023 - 2026 (medium-term forecast)
Phase III	Terminal Value

We used the following sources to estimate future cash flows:

- Annual reports of the company
- Discussions with the Management Board
- Medical publications

Discussion of Capital Costs

Derivation of capital costs

Since we assume that the company is, and will continue to be, not indebted, we do not calculate a weighted average cost of capital (WACC), but only the cost of equity. We obtain the risk-free interest rate from the yield on 20-year German government bonds. We approximate the expected market return using empirical values from European and international broadly diversified indices and combine these with recommendations from KPMG's current cost of capital study. As an idiosyncratic risk component, we select the sector beta of the Dax subsector "All Biotechnology TR" against MSCI World (regression of weekly returns over two years) and thus represent the market risk range for a company from the same sector.

We add 5 percentage points to the cost of capital calculated in this way as a company-specific risk, reflecting the fact that our forecast and DCF model is subject to the necessary capital measures.

Forecast assumptions

Forecasts

Our forecasts are essentially based on the recent successes of the company. These include the recent market approval in India and the successful phase II studies in Europe. A prerequisite for the realization of our model is capital inflows, which we have shown through equity capital measures.

DermaTools: Increase of the evaluation level

With these capital increases for the financing of the clinical studies, we anticipate - due to the revenues from India starting from 2020 - an increase in the valuation level of DermaTools GmbH by 10% in 2019 and 25% in 2020. Taking this into account, we determine the increasing interest of CytoTools AG in the subsidiary along with the capital increases with 67% (end of 2019) and just under 73% (from the end of 2020), starting from 62% (H1/2019). The determined quotas result under the assumption that the minority shareholders of DermaTools do not subscribe.

Our DCF analysis is also based on the "as if Group" assumption. In order to arrive at the equity value of CytoTools AG as a holding company, we multiply all free cash flows with the respective interest ratio of the Holding in DermaTools GmbH. Finally, we add the book value of the stake in Cytopharma GmbH (assumption: €2 million). In the terminal value, we reduce the EBIT margin to 50%, thus taking into account foreseeable price adjustments due to the market entry of competing products. Last but not least, with the expiry of the product protection in 2033, it is almost certain that generic manufacturers will be attracted.

DCF-Model

in € ths.	2018a	Phase I 2019e	2020e	2021e	2022e	Phase II 2023e	2024e	2025e	2026e	Terminal Value
	Basis	1	2	3	4	5	6	7	8	
Growth		0.0%	n.a.	200.0%	66.7%	263.5%	114.0%	53.3%	34.8%	1.0%
Revenues	1	1	1,155	3,465	5,775	20,991	44,926	68,861	92,796	93,724
EBIT	-1,223	-1,280	-3,258	-3,468	-1,175	17,437	42,875	66,313	89,750	46,862
- Tax	0	0	0	0	0	2,092	5,145	7,958	10,770	14,059
+ Depreciation and amortization	30	30	30	30	30	30	30	30	30	30
+ Change in long-term provisions	-2	0	0	0	0	0	0	0	0	0
- Change in net working capital	82	-62	5,846	-1,808	-3,558	1,268	1,995	1,995	1,995	1,995
+ Other non-cash items	16	0	0	0	0	0	0	0	0	0
- Capex	3,296	30	380	50	30	30	30	30	30	30
= Free Cash Flow on DermaTools level	-4,558	-1,219	-9,455	-1,681	2,382	14,076	35,735	56,360	76,985	30,809
Free Cash Flow on CytoTools level under consideration of the respective interest structure		-783	-6,865	-1,220	1,730	10,221	25,948	40,924	55,900	22,371
Terminal Value										179,930
Discount factor	n.a.	0.88	0.77	0.67	0.59	0.52	0.45	0.40	0.35	0.35
NPV of Free Cash Flows	n.a.	-686	-5,266	-820	1,018	5,268	11,713	16,180	19,356	
NPV of Terminal Value										62,305

Valuation		**Proportion of EV**
Result of Phase I and II	46,762	**43%**
+ Result of Terminal Value	62,305	**57%**
= Value of Equity	109,067	
+ Book value of Cytopharma GmbH	2,000	
Equity value of the company holdings	111,067	
No. of shares (after capital increases, in ths.)	4,394	
Price per Share	25.28	

Participation of CytoTools AG in DermaTools GmbH due to capital increases								
66.6%	*72.6%*	*72.6%*	*72.6%*	*72.6%*	*72.6%*	*72.6%*	*72.6%*	*72.6%*

Source: BankM Research

Model Assumptions

	Source	Ph. I und II	TV
Risk free return	*Bloomberg*	-0.01%	
Expected Market Return	*Bloomberg / KPMG*	8.43%	
Market risk premium	*Bloomberg / KPMG*	8.44%	
Sector Beta (Daxsubsec. All Biotechnology Perf. Vs. MSCI World)	*Bloomberg*	1.09	1.00
Company-specific risk premium		5.00%	
Cost of Equity		**14.18%**	
Cost of Equity in TV			**13.43%**

Source: BankM Research

Sensitivity Analysis

Growth rate Terminal Value	Cost of Capital in Terminal Value						
	11.00%	12.00%	13.00%	**13.43%**	14.00%	15.00%	16.00%
0.00%	26.96	25.64	24.52	24.09	23.56	22.73	22.00
0.50%	27.80	26.35	25.13	24.66	24.09	23.19	22.41
1.00%	28.73	27.13	25.79	25.28	24.66	23.69	22.85
1.50%	29.76	27.98	26.51	25.95	25.28	24.23	23.32
2.00%	30.89	28.92	27.30	26.68	25.95	24.80	23.82

Growth rate Terminal Value	EBIT margin in Terminal Value						
	48.50%	49.00%	49.50%	**50.00%**	50.50%	51.00%	51.50%
0.00%	23.67	23.81	23.95	24.09	24.22	24.36	24.50
0.50%	24.23	24.37	24.51	24.66	24.80	24.95	25.09
1.00%	24.83	24.98	25.13	25.28	25.43	25.58	25.73
1.50%	25.48	25.64	25.79	25.95	26.11	26.27	26.43
2.00%	26.18	26.35	26.52	26.68	26.85	27.01	27.18

Source: BankM Research

Valuation Summary

On the basis of our DCF analysis we determine - after consideration of model-implicit dilution - a value of **€25.28 per CytoTools share**. In view of the current price level, our recommendation is "**Buy**".

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Responsible for the content of this document: BankM AG, Frankfurt am Main, Germany („BankM").

Author: Dr. Roger Becker, CEFA, Analyst.

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Issuer of the analysed instrument is CytoTools AG.

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3. Date of first publication of this document:

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