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Toll-Free: 866-928-0928 ♦ www.DawsonJames.com ♦ 101 North Federal Highway - Suite 600 ♦ Boca Raton, FL 33432

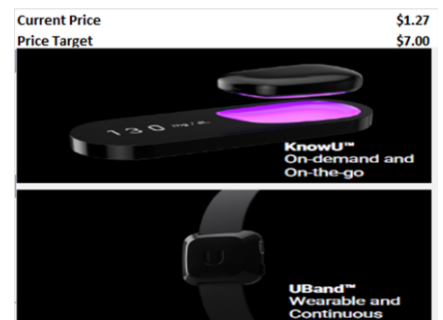
Know Labs (ASE: KNW) - Buy

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Devices Shows Improved Accuracy – Glucose Monitoring

Jason Kolbert
Managing Director and Senior Analyst
jkolbert@dawsonjames.com

Know Labs announced the results of a new study titled, “Algorithm Refinement in the Non-Invasive Detection of Blood Glucose Using Know Labs’ Bio-RFID Technology”. The study validates that algorithm optimization using a light gradient-boosting machine (lightGBM) machine learning model and other data science techniques improved the accuracy of Know Labs’ Bio-RFID™ technology at quantifying blood glucose, demonstrating an overall Mean Absolute Relative Difference (MARD) of 12.9% – which is within the range of other FDA-cleared blood glucose monitoring devices.



Source: Know Labs

Stock Data Sept. YE			
52-Week Range	\$0.80	-	\$4.00
Shares Outstanding (mil.)	48.5		
Market Capitalization (mil.)	\$62		
Enterprise Value (mil.)	\$55		
Debt to Capital	0%		
Book Value/Share	NA		
Price/Book	-		
Average Three Months Trading Volume (K)	NA		
Insider Ownership	32.5%		
Institutional Ownership	3.4%		
Short interest (mil.)	0.3%		
Dividend / Yield	\$0.00/0.0%		



Investment Highlights:

A Paradigm Shift in How We Measure – Radio Frequency Coupled with Artificial Intelligence (AI). The technology utilizes electromagnetic energy across a wide range of the spectrum from visible light and infrared to radio and microwave wavelengths to perform analytics (AI processing) which accurately identifies and quantitates its target. The first selected indication is set targeting the glucose levels (HbA1c) in type II diabetic patients.

What is the Opportunity? With a competitive product and just a tiny piece of the market, the company can succeed. In just Type II diabetes in the U.S. alone, the CDC estimates there are 37M target patients. The numbers are even more significant in Europe.

Does it Work? The company has run hundreds of internal proof of concept studies and recently completed *In Vitro* validation at a world-renowned academic medical center. An *In Vivo* Study of Bio-RFID glucose monitoring is expected to begin soon.

What’s the Timeline & Pathway to the Marketplace? The company will be busy over the next two years as they complete product refinements and finalize the KnowU production units. Management is preparing to initiate a clinical program based on input from regulators. A pre-submission meeting with the FDA is the next step. Multiple variables predict the timeline. Management intends to use the De Novo pathway. This pathway does not rely on comparisons to a predicate device where equivalence must be shown. As the technology behind the KnowU band is novel, it may provide an accelerated path to market.

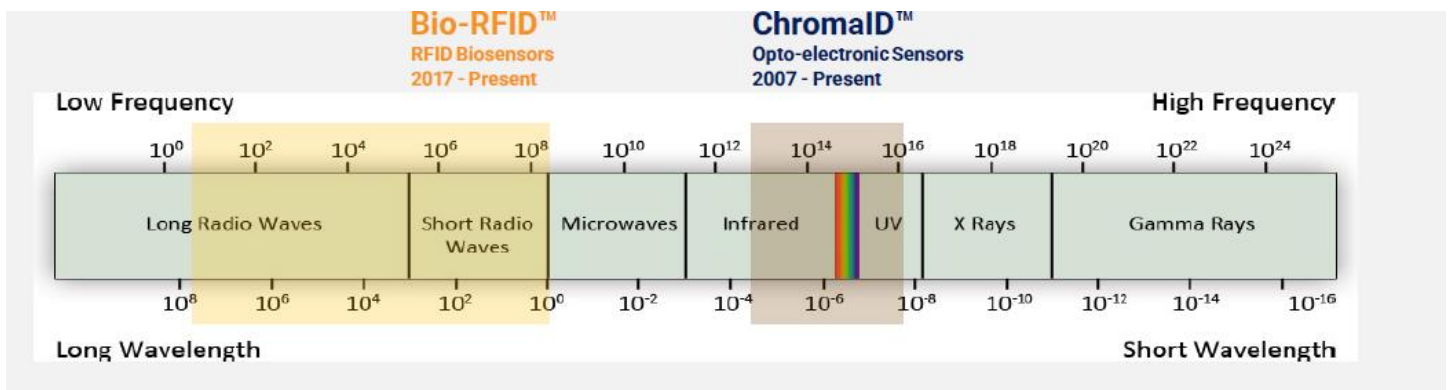
Valuation: We project our model out to 2030. We apply a conservative 30% success probability to our projected revenues in our product model, which is in addition to our 30% risk rate applied in our Free Cash Flow to the Firm (FCFF), discounted EPS (dEPS), and Sum-of-the-Parts (SOP) models, which are then equal-weighted and averaged and rounded to the nearest whole number to derive our 12-month projected price target of \$7.0.

Risks to our thesis include: 1. Regulatory Approvals 2. Clinical Science 3. Dependence on OEM suppliers 4. Development of the target markets 5. Intellectual Capital 6. Dilution

Company Description: Know Labs is an advanced technology company that is currently focused on developing “Bio-RFID”. The Bio-RFID sensor employs electromagnetic energy to detect, record, identify, and measure a unique signature of the target. The results are then analyzed using proprietary algorithms combined with its artificial intelligence (AI) Deep Learning platform.

How Does it Work? Bio-RFID utilizes spectroscopy at higher wavelengths to span radio wave and microwave segments of the electromagnetic spectrum. The technology, which is highly patented, utilizes electromagnetic energy along a wide range of the electromagnetic spectrum from visible light and infrared to radio and microwave wavelengths to perform analytics which allow the user to accurately identify and measure materials and analytes depending upon the specified targets or endpoints and field of use. A critical competitive differentiator for Bio-RFID is its ability not only to identify a wide range of organic and inorganic materials and analytes but to do so concurrently and in real-time, which potentially enables new multivariate models of clinical diagnostics and health and wellness monitoring. The company has been able to non-invasively measure blood glucose levels in humans with a high degree of accuracy and specificity. The company notes that its ability to obtain exacting results from the data obtained from its Bio-RFID sensor technology, also referred to as Radio Frequency Spectroscopy or RF Spectroscopy is a consequence of the application of the Company’s proprietary algorithms.

Exhibit 1. The Technology and the Spectrum



Source: Know Labs

It's not just the sensor but its AI Artificial Intelligence & Machine Learning, too. The company has developed AI and Machine Learning that drives the accurate pattern recognition of its algorithms which has led to the development of a robust AI Deep Learning Platform at the company. The initial indication is pattern recognition for Bio-RFID’s exacting determination of blood glucose levels. The company notes that the same sensor/technology can provide the data recognition for blood alcohol and blood oxygen levels too. We note that the company sees value in its AI Deep Learning Platform and has structured this part of the business as a subsidiary, AI Mind, Inc.

How Well Does It Work, How Does it Compare to What’s on the Market Now? The company announced the results of laboratory-based comparison testing between its Bio-RFID technology and the leading continuous glucose monitors from Abbott Labs (Freestyle Libre®) and DexCom (G6®). These results provide evidence of a high degree of correlation between the Bio-RFID technology and the current industry leaders and their continuous glucose monitors. In addition to internal testing, the Company engaged a world-renowned research institution to perform third-party validation testing of the Bio-RFID technology. The purpose of the independent research was to confirm that Know Labs’ Bio-RFID technology is able to precisely and non-invasively measure and identify a variety of analytes in vitro by detecting their unique radio frequency spectral responses.

What’s the Pathway to the Market? The company intends to seek a De Novo approval versus the alternative a traditional 510(k) pathway. Recall that the 510(k) submissions rely on a predicate device that must prove substantial equivalence for market clearance; De Novo submissions begin with a clean slate and don't use any existing equivalence criteria as a basis for approval of a device. And it is for this reason that some companies consider the De Novo pathway.

Exhibit 2. Model Assumptions

1. Our model is a simplified prevalence model where we assume a timeline, market share, and a price in the Type II diabetes markets in the U.S. and Europe.
2. We assume annual pricing of just \$1,000, which we note is well below competing devices now in use in the marketplace.
3. The market size is quite large; as such, almost any market share translates into commercial success.
4. We apply just a 30% probability of success. We believe this is conservative as the device has already demonstrated proof of concept and equivalence to other products in the marketplace. As we see clinical progress, we anticipate raising this probability which then has the effect of driving a higher suggested valuation.

Exhibit 3. Product Model

U.S. Type II Diabetese Market	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
US Market Prevalance	48,000,000	50,400,000	52,920,000	55,566,000	58,344,300	61,261,515	64,324,591	67,540,820	70,917,861	74,463,754	78,186,942
Assume 10% - Proactive & Insured	4,800,000	5,040,000	5,292,000	5,556,600	5,834,430	6,126,152	6,432,459	6,754,082	7,091,786	7,446,375	7,818,694
Market Share	0%	0%	0%	0%	3%	6%	8%	10%	12%	14%	15%
Annual Fee	-	-	-	-	175,033	367,569	514,597	675,408	851,014	1,042,493	1,172,804
Annual Fees - Price	-	-	\$1,000	\$1,020	\$1,040	\$1,061	\$1,082	\$1,104	\$1,126	\$1,149	\$1,172
Revenues (M)	-	-	\$0	\$0	\$182	\$390	\$557	\$746	\$958	\$1,197	\$1,374
Probability of Success			30%	30%	30%	30%	30%	30%	30%	30%	30%
Annual Revenues - Millions			\$0	\$0	\$55	\$117	\$167	\$224	\$288	\$359	\$412

ROW Type II Diabetese Market	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
US Market Prevalance	59,000,000	61,950,000	65,047,500	68,299,875	71,714,869	75,300,612	79,065,643	83,018,925	87,169,871	91,528,365	96,104,783
Assume 10% - Proactive & Insured	5,900,000	6,195,000	6,504,750	6,829,988	7,171,487	7,530,061	7,906,564	8,301,892	8,716,987	9,152,836	9,610,478
Market Share	0%	0%	-	-	1%	3%	5%	7%	9%	10%	11%
Annual Fee	-	-	-	-	71,715	225,902	395,328	581,132	784,529	915,284	1,057,153
Annual Fees - Price	-	-	\$1,000	\$1,020	\$1,040	\$1,061	\$1,082	\$1,104	\$1,126	\$1,149	\$1,172
Revenues (M)	-	-	\$0	\$0	\$75	\$240	\$428	\$642	\$884	\$1,051	\$1,239
Probability of Success			30%	30%	30%	30%	30%	30%	30%	30%	30%
Annual Revenues - Millions			\$0	\$0	\$22	\$72	\$128	\$192	\$265	\$315	\$372

Source: Dawson James

Risks Analysis includes: (1) Regulatory Approvals; (2) Clinical Science (3) Dependence on OEM suppliers; (4) Product Development (5) Intellectual Capital & IP (6) Competitive Landscape (7) Dilution and or Financing Risks.

Regulatory risk: Know Labs must be able to obtain the approval of the FDA before commercial sales of the product candidates commence in the United States. The timing of these approvals is uncertain.

Clinical Science risk: The trials may take longer than expected and the design may face challenges. The company plans to pursue the De Novo pathway but there can be no guarantees that this will be viable versus another pathway such as the FDA's 510-K.

Dependence on OEM suppliers: The company must rely on others to manufacture its devices.

Product Development risk: The company is still in early stages of finalizing its products and software.

Intellectual Capital & IP: The company is still small with a select group of internal people able to understand and develop the technology. The company's ability to expand may be dependent on its ability to retain existing and recruit new people to join the organization. The company has a defined patent estate but there can be no guarantees that the company patents are valid and or may be challenged.

Competitive Landscape: The medical device market is intensely competitive. Know Labs must compete with existing and new treatment methods, as well as new technologies for its disease targets. In addition, the company faces intense competition, including well-capitalized devices companies and other emerging technology companies, most of which are well financed.

Dilution and or Financing risk: Know Labs is not a profitable company. While the company has a cash balance today, it is likely that it might need to raise additional capital prior to commercialization. The company's ability to do so could be critical to keeping the current programs moving forward and providing a value-creation event in the future.

Exhibit 4. Income Statement

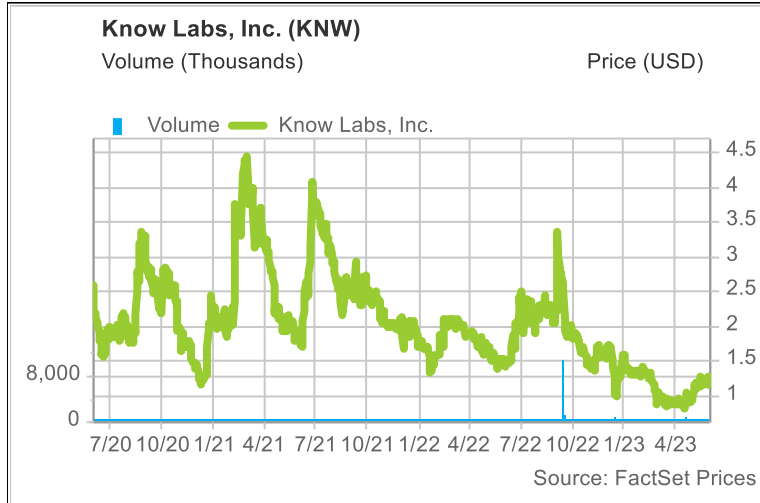
KNWN, Inc. Income Statement (\$000)		3Q22		4Q23		YE-2022		1Q23		YE-2022		2Q23								
YE Sept. 31		2021A	1Q22A	2Q22A	3Q22A	4Q22A	2022A	1Q23E	2Q23E	3Q23E	4Q23E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	
Revenue (\$000)																				
US Type 2 Diabetes			-	-	-	-	-	-	-	-	-	-	-	54,631	117,020	167,105	223,712	359,249	412,238	
ROW Type 2 Diabetes														300	300	300	300	300	300	
Other Platform Services																25,000	50,000	75,000	100,000	
Total Revenues			9	-	4,360	-	4,369	-	-	-	-	-	-	109,563	234,340	334,510	447,723	718,798	824,776	
Expenses																				
COGS			-	-	-	-	-	-	-	-	-	-	-	15,339	23,434	26,761	31,341	43,128	41,239	
% COGS														14%	10%	8%	7%	6%	5%	
Gross Profit			9	-	4,360	-	4,369	-	-	-	-	-	-	94,224	210,906	307,749	416,383	675,670	783,537	
Research & Development	868,584	3,970	1,249	1,273	1,994	2,563	2,779	720	750	750	780	3,000	6,000	12,000	12,240	12,485	12,734	12,989	13,249	
General & Administrative	994,221	6,476	1,448	1,589	4,087	2,243	5,000	1,224	1,275	1,275	1,326	5,100	5,202	10,000	15,000	15,300	15,606	15,918	16,236	
Marketing & Business Development			155	164	-	-	-	-	-	-	-	-	2,000	4,000	15,000	25,000	25,500	26,010	26,530	
Total expenses		10,446	2,851	3,025	6,081	4,806	16,764	1,944	2,025	2,025	2,106	8,100	13,202	26,000	42,240	52,785	53,840	54,917	56,016	
Operating Profit		(10,446)	(2,843)	(3,025)	(1,721)	(4,806)	(12,395)	(1,944)	(2,025)	(2,025)	(2,106)	(8,100)	(13,202)	68,224	168,666	254,964	362,542	620,753	727,522	
Oper Margin																				
Interest Income (expense)	-5228	(14,914)		(240)		(124)	(364)													
Other Income			(3)	262			259													
Pre-tax income		(25,360)	(6,141)	(3,003)	(1,721)	(4,930)	(15,795)	(1,944)	(2,025)	(2,025)	(2,106)	(8,100)	(13,202)	68,224	168,666	254,964	362,542	620,753	727,522	
Pretax Margin																				
Income Tax (Benefit)			-	-	-	-	-	-	-	-	-	-	-	-	-	25,496	54,381	124,151	181,880	
Tax Rate			0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	15%	20%	25%	
GAAP Net Income		(25,360)	(6,141)	(3,003)	(1,721)	(4,930)	(15,795)	(1,944)	(2,025)	(2,025)	(2,106)	(8,100)	(13,202)	68,224	168,666	229,468	308,161	496,602	545,641	
GAAP-EPS		(0.86)	(0.16)	(0.07)	(0.04)	(0.10)	(0.37)	(0.04)	(0.03)	(0.03)	(0.04)	(0.15)	(0.13)	0.65	1.60	2.16	2.88	4.60	5.02	
Non GAAP EPS (dil)		(0.86)	(0.07)	(0.03)	(0.02)	(0.04)	(0.16)	(0.04)	(0.02)	(0.02)	(0.02)	(0.10)	(0.13)	0.65	1.60	2.16	2.88	4.60	5.02	
Wgtd Avg Shrs (Bas) - '000s		29,371	37,872	43,761	40,370	48,208	42,553	48,304	58,401	58,518	58,635	55,964	58,929	59,401	59,878	60,359	60,843	61,331	61,823	
Wgtd Avg Shrs (Dil) - '000s		29,371	93,000	93,186	80,000	113,599	94,946	93,186	103,372	103,579	103,786	100,981	104,202	104,933	105,670	106,411	107,158	107,910	108,668	

Source: Company reports and Dawson James

Companies mentioned in this report:

Important Disclosures:

Price Chart:



Price target and rating changes over the past three years:

- Initiated – Buy – February 8, 2022 – Price Target \$7.0
- Update Report – Buy – February 15, 2022 – Price Target \$7.0
- Update Report – Buy – May 24, 2022 – Price Target \$7.0
- Update Report – Buy – September 7, 2022 – Price Target \$7.0
- Update Report – Buy – September 19, 2022 – Price Target \$7.0
- Update Report – Buy – December 21, 2022 – Price Target \$7.0
- Update Report – Buy – January 27, 2023 – Price Target \$7.0
- Update Report – Buy – February 17, 2023 – Price Target \$7.0
- Update Report – Buy – May 16, 2023 – Price Target \$7.0
- Update Report – Buy – June 2, 2023 – Price Target \$7.0

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Current as of 25-May-23

	Company Coverage		Investment Banking	
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Market Perform (Neutral)	10	28%	1	3%
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