quantus SKIN

REVOLUTIONIZING THE DETECTION OF MALIGNANT DERMATOLOGICAL LESIONS

- ✓ 100% non-invasive
- ✓ Reliable results in 10 minutes
- ✓ Excellent sensitivity and specificity values

AN UNRESOLVED CLINICAL NEED

- Malignant dermatologic lesions have increased significantly in incidence worldwide in white populations.
- If detected early, the lesion has a high chance of being treated.
- However, this is commonly performed only in people with risk factors and there is no convincing evidence for the follow-up of low-risk groups of patients.

QUANTUSSKIN - ANALYSIS AND CLASSIFICATION OF DERMATOSCOPIC IMAGES FOR MALIGNANCY RISK ASSESSMENT

- Non-invasive: quantusSKIN is a non-invasive test to predict the risk of malignancy of different skin lesions from a photograph or dermoscopic image.
- Fast: quantusSKIN generates accurate results in just a few minutes.

Sensitivity	Specificity	PPV	NPV
89,6%	85,2%	52,6%	97,8%

*PPV and NPV (Positive Predictive Value and Negative Predictive Value)

HOW TO USE quantusSKIN

Using quantusSKIN is easy, requiring only 3 simple steps:

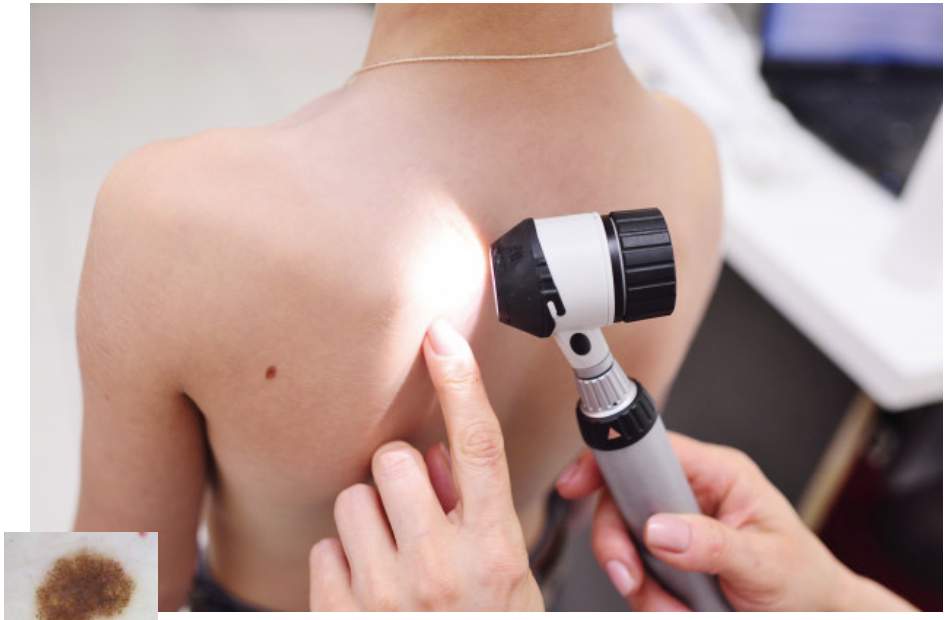
1. Acquire a dermoscopic image

2. Upload the image to the web application

3. Obtain the results

Step1: ACQUIRE A DERMOSCOPIC IMAGE

quantusSKIN requires a skin image in JPG or PNG format taken with a smartphone, reflex camera or similar, always without acoustic light. A dermatoscope can also be used as long as no size or magnification markers or light tros are used. There is a simple guide available within the application that shows how to perform these acquisitions.



Step 2: Use the quantusSKIN web application to analyze the image.

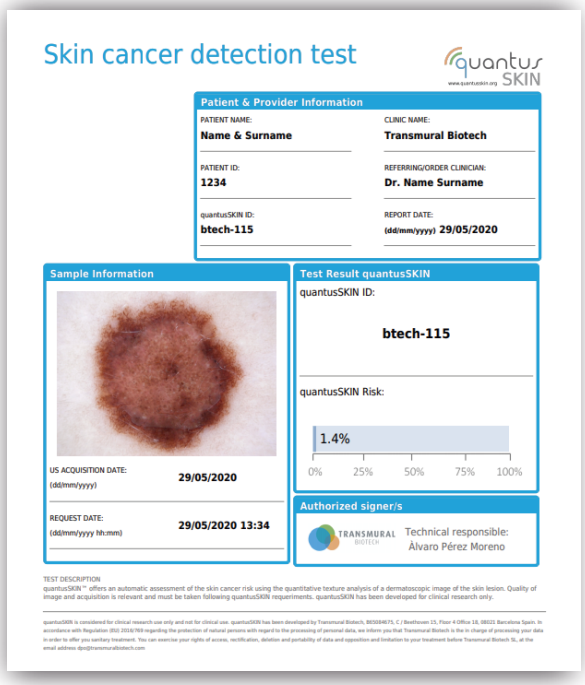
This application is a simple tool that allows you to send to the system the image that you want to analyze. You only need to follow three simple steps to complete the analysis.

Upload
Upload the JPG or PNG image

Select
Select the desired image

Send
Identify the calcified information

Step 3: Obtain the result of the application within a few minutes.


Skin cancer detection test

quantus SKIN

Patient & Provider Information

PATIENT NAME: Name & Surname
CLINIC NAME: Transmural Biotech
PATIENT ID: 1234
REFERRING/ORDER CLINICIAN: Dr. Name Surname
quantusSKIN ID: btech-115
REPORT DATE: (dd/mm/yyyy) 29/05/2020

Sample Information

US ACQUISITION DATE: (dd/mm/yyyy) 29/05/2020
REQUEST DATE: (dd/mm/yyyy hh:mm) 29/05/2020 13:34

Test Result quantusSKIN

quantusSKIN ID: btech-115
quantusSKIN Risk: 1.4%
0% 25% 50% 75% 100%

Authorized signer/s

TRANSMURAL BIOTECH Technical responsible: Álvaro Pérez Moreno

TEST DESCRIPTION

quantusSKIN ™ offers an automatic assessment of the skin cancer risk using the quantitative texture analysis of a dermatoscopic image of the skin lesion. Quality of image and acquisition is relevant and must be taken following quantusSKIN requirements. quantusSKIN has been developed for clinical research only.

quantusSKIN is considered for clinical research use only and not for clinical use. quantusSKIN has been developed by Transmural Biotech, B65094675, C / Beethoven 15, Floor 4 Office 18, 08021 Barcelona Spain. In accordance with Regulation (EU) 2016/769 regarding the protection of natural persons with regard to the processing of personal data, we inform you that Transmural Biotech is the in charge of processing your data in order to offer you sanitary treatment. You can exercise your rights of access, rectification, deletion and portability of data and opposition and limitation to your treatment before Transmural Biotech SL, at the email address dpo@transmuralbiotech.com

WHEN TO USE quantusSKIN

quantusSKIN is a non-invasive, fast and easy-to-use test for the detection of malignant dermatological lesions from dermoscopic images. Its technology is based on quantitative analysis of dermoscopic image texture. By simply analyzing and classifying images,
quantusSKIN determines the risk of skin lesion malignancy within minutes.

quantusSKIN has been designed with a clear focus on the general population, and aims to be a tool for the detection of malignant skin lesions (melanoma, basal cell carcinoma or squamous cell carcinoma), being of great help in the screening of patients with risk factors and prioritization of waiting lists.

quantusSKIN classifies skin lesions as either benign or malignant, without (or in addition to) visual inspection by a specialist using a dermatoscope. The specialist, always trained, classifies the images by visual patterns and quantusSKIN gives a percentage risk of malignancy.

quantusSKIN OFFERS A LIMITLESS EXPERIENCE

- **Unrestricted 24x7 access:** With only an internet connection, you can run quantusSKIN and review results at any time and from any location.
- **No installation required:** quantusSKIN has been designed in such a way that its initial use is simple since it does not require the download or installation of any software.
- **High compatibility:** quantusSKIN is compatible with most browsers. The model can be used for web-based as well as primary devices.

quantusSKIN OFFERS HIGH ECONOMIC VALUE:

- **NO initial investment in infrastructure required!**
- **Pay-as-you-go: Pay only for each test you order!**
- **FREE 30-day trial available, no obligation!**

To get a FREE 30-day trial, please contact us at sales@transmuralbiotech.com

WHY DOES quantusSKIN WORK?

An automated support tool is defined as one that requires minimal or no physician intervention to obtain a result. Over the past few years, research has focused on automated algorithms to improve current imaging-based clinical diagnosis. The rise of Arti cial Intelligence techniques, and especially Deep Learning, has increased the number of studies using this type of algorithm in diagnostic dermatology.

Several recently published studies show that skin cancer detection using trained Deep Learning models can achieve high accuracy in diverse populations and provide quantitative comparisons of how model performance can vary across datasets consisting of glaucoma of different disease severity and ethnicity.

quantusSKIN is presented as a novel Artificial Intelligence method based on state-of-the-art Deep Learning. Several studies have proven the correlation between the quantum analysis method proposed by quantusSKIN. The technology is based on performing a quan ta ve analysis of the texture of the cutaneous Nevis image obtained using a smartphone, reflex camera or dermatoscope. This analysis makes it possible to identify patterns associated with specific pathologies and to determine the risk of malignancy of the skin lesion.
According to the literature, the
various tests and tools used by the dermatologist give an individual sensitivity of 75-84% (see reference 9); while quantusSKIN has obtained in its tests a sensitivity of 85.6% (see reference 16).

Referencias

[1] U. Leiter, T. Eigentler, and C. Garbe, “Epidemiology of Skin Cancer BT - Sunlight, Vitamin D and Skin Cancer,” in *Advances in experimental medicine and biology*, vol. 810, J. Reichrath, Ed. Springer New York, 2014, pp. 120–140.
[2] C. Garbe and U. Leiter, “Melanoma epidemiology and trends,” *Clin. Dermatol.*, vol. 27, no. 1, pp. 3–9, Jan. 2009, doi: 10.1016/j.clindermatol.2008.09.001.
[3] G. P. Guy, S. R. Machlin, D. U. Ekwueme, and K. R. Yabroff, “Prevalence and costs of skin cancer treatment in the U.S., 2002-2006 and 2007-2011,” *Am. J. Prev. Med.*, vol. 48, no. 2, pp. 183–187, Feb. 2015, doi: 10.1016/j.amepre.2014.08.036.
[4] H. W. Rogers, M. A. Weinstock, S. R. Feldman, and B. M. Coldiron, “Incidence estimate of nonmelanoma skin cancer (keratinocyte carcinomas) in the us population, 2012,” *JAMA Dermatology*, vol. 151, no. 10, pp. 1081–1086, Oct. 2015, doi: 10.1001/jamadermatol.2015.1187.
[5] R. L. Siegel, K. D. Miller, and A. Jemal, “Cancer statistics, 2017,” *CA. Cancer J. Clin.*, vol. 67, no. 1, pp. 7–30, Jan. 2017, doi: 10.3322/caac.21387.
[6] “Melanoma Warning Signs and Images - The Skin Cancer Foundation.” https://www.skincancer.org/skin-cancer-information/melanoma/melanoma-warning-signs-and-images/ (accessed Sep. 29, 2020).
[7] H. A. Haenssle *et al.*, “Association of patient risk factors and frequency of nevus-associated cutaneous melanomas,” *JAMA Dermatology*, vol. 152, no. 3, pp. 291–298, Mar. 2016, doi: 10.1001/jamadermatol.2015.3775.
[8] P. Tschandl and P. Doz Philipp Tschandl, “Sequential digital dermatoscopic imaging of patients with multiple atypical nevi,” *Rev. | Dermatol Pr. Concept*, vol. 8, no. 3, pp. 231–237, 2018, doi: 10.5826/dpc.0803a16.
[9] M. E. Vestergaard, P. Macaskill, P. E. Holt, and S. W. Menzies, “Dermoscopy compared with naked eye examination for the diagnosis of primary melanoma: A meta-analysis of studies performed in a clinical setting,” *Br. J. Dermatol.*, vol. 159, no. 3, pp. 669–676, Sep. 2008, doi: 10.1111/j.1365-2133.2008.08713.x.
[10] H. Kittler, H. Pehamberger, K. Wolff, and M. Binder, “Diagnostic accuracy of dermoscopy,” *Lancet Oncology*, vol. 3, no. 3. Lancet Publishing Group, pp. 159–165, Mar. 01, 2002, doi: 10.1016/S1470-2045(02)00679-4.
[11] A. C. Geller, S. M. Swetter, K. Brooks, M. F. Demierre, and A. L. Yaroch, “Screening, early detection, and trends for melanoma: Current status (2000-2006) and future directions,” *Journal of the American Academy of Dermatology*, vol. 57, no. 4. Mosby, pp. 555–572, Oct. 01, 2007, doi: 10.1016/j.jaad.2007.06.032.
[12] A. Rosenberg and J. H. Meyerle, “Total-body photography in skin cancer screening: The clinical utility of standardized imaging,” *Cutis*, vol. 99, no. 5, pp. 312–316, May 2017, Accessed: Sep. 29, 2020. [Online]. Available: https://europepmc.org/article/med/28632800.
[13] N. C. F. Codella *et al.*, “Skin lesion analysis toward melanoma detection: A challenge at the 2017 International symposium on biomedical imaging (ISBI), hosted by the international skin imaging collaboration (ISIC),” in *Proceedings - International Symposium on Biomedical Imaging*, May 2018, vol. 2018-April, pp. 168–172, doi: 10.1109/ISBI.2018.8363547.
[14] P. Tschandl, C. Rosendahl, and H. Kittler, “Data descriptor: The HAM10000 dataset, a large collection of multi-source dermatoscopic images of common pigmented skin lesions,” *Sci. Data*, vol. 5, no. 1, pp. 1–9, Aug. 2018, doi: 10.1038/sdata.2018.161.
[15] M. Combalia *et al.*, “BCN20000: Dermoscopic Lesions in the Wild,” Aug. 2019, Accessed: Jul. 01, 2020. [Online]. Available: http://arxiv.org/abs/1908. .
[16]Coronado-Gutiérrez, D., López, C., & Burgos-Artizzu, X. (2021). Skin cancer high-risk patient screening from dermoscopic images via Artificial Intelligence: an online study. doi: 10.1101/2021.02.04.21251132

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NON INVASIVE

RELIABLE

FAST

To get a FREE 30-day trial,
please contact us at
sales@transmuralbiotech.com

CSQ MED ISO 13485:2016

CE

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