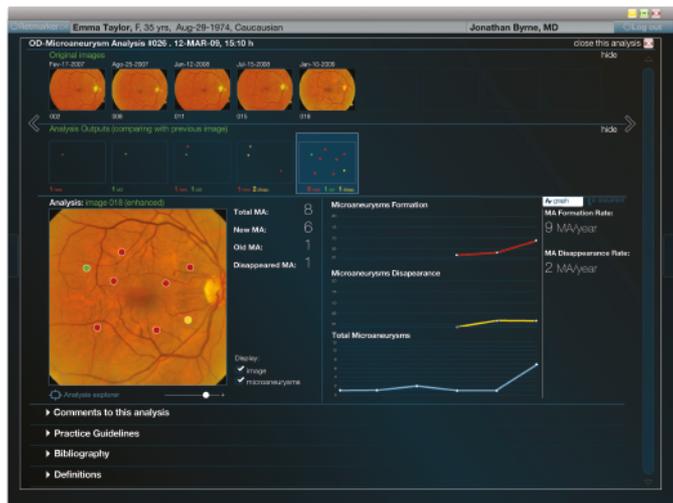




[www.retmarker.com](http://www.retmarker.com)



The Analysis Output shows the Microaneurysm Turnover ratios



Co-registered Side-by-Side Visit Comparison

## Two Leading Organizations Launch an Innovative Diabetic Retinopathy Progression Biomarker Software

**RetmarkerDR** is an innovative Diabetic Retinopathy (DR) progression biomarker software, developed in partnership with a leading research institute - AIBILI (Association for Biomedical Research and Innovation in Light and Image). RetmarkerDR is a patented solution and a CE marked medical device.

**RetmarkerDR** software solution is a breakthrough in predicting Diabetic Retinopathy progression from a Nonproliferative stage to Clinically Significant Macular Edema (CSME), a sight-threatening stage. The solution is based on the latest research on Microaneurysm Turnover, the new and most reliable biomarker for Diabetic Retinopathy progression.

This solution will become a critical tool to support ophthalmologists worldwide in the search for optimal management of diabetic retinopathy progression.

**RetmarkerDR** helps to deliver quality care and to reduce total healthcare spending by increasing the healthcare provider's productivity and reliability in the management of Diabetic Retinopathy and other retinal diseases.

## **RetmarkerDR** calculates Microaneurysm Turnover ratios, which are key indicators of retinal disease progression.

Even though Angiography is the gold standard in microaneurysms detection, it is an invasive exam, not tolerated by all patients. **RetmarkerDR** uses retinographies, also known as colour fundus photographs, which are a widespread and non-invasive tool that can also be used for diagnosing DR. According to recent research, there is very significant correlation between the MA Turnover based on angiographies and the MA Turnover based on retinographies.

**RetmarkerDR** uses an advanced proprietary co-registration algorithm which automatically overlaps the retinographies and complements it with a state-of-the-art Microaneurysm (MA) detector to calculate important ratios regarding MA Turnover (Formation and Disappearance Rates). This is only possible because **RetmarkerDR** detects each microaneurysm as a single entity in a specific location. **RetmarkerDR** also provides indicators regarding the total number of MAs, new MAs and occluded MAs per image.

# Advantages

## Clinical Advantages

**Biomarker for Diabetic Retinopathy Progression.**

**Uses a proprietary co-registration method** to consistently and accurately identify microaneurysms and detect retinal changes over time.

**Detects each Microaneurysm as a single entity in a specific location**, allowing the system to compute the Microaneurysm Turnover indicators: Formation and Disappearance rates.

**Automatically highlights the differences** between retinographies. Clearly identifies changes difficult to detect by the human eye.

**Access to information** on 'Preferred Practice Patterns'.

**Powerful analysis tool set** including custom made analysis and tools to document, draw-over and comment images.

**Simple and focused** indicators on an onscreen dashboard.

**Standard reports** and digital imaging archive features.

## Business Advantages

**Improves care quality** of the diagnosis and care delivery reliability.

**Improves care delivery productivity.**

**Provides a digital imaging archive.**

**Enables more and better early treatments.**



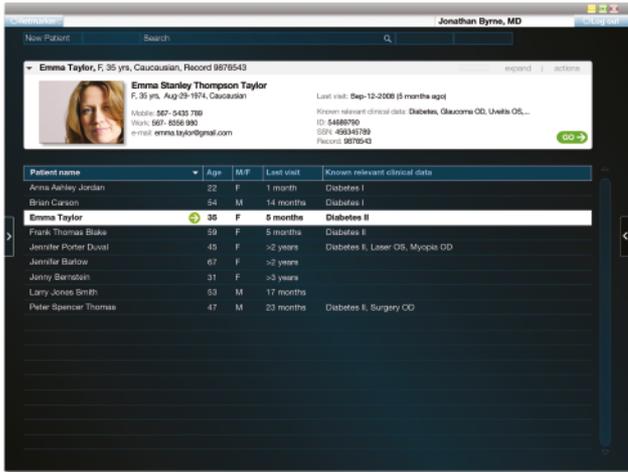
RetmarkerDR is backed by leading edge research presented by AIBILI at the most important scientific forums.

RetmarkerDR underlying concepts are backed by leading edge research results presented by AIBILI at the most important scientific forums and in high-impact publications.

Conclusions from these studies show that Microaneurysm Turnover, more than just Microaneurysm Count, is a key indicator for the progression of Diabetic Retinopathy. Based on this evidence, **RetmarkerDR** should be used for early stages of Diabetic Retinopathy, ETDRS level <35, for a 1-2 years period with a follow up every 6 months. You can access more information on existing scientific research on this subject at our website.

“According to our research, where we analysed different type 2 diabetic patients with nonproliferative retinopathy, Microaneurysm Turnover was a key factor for the classification in different phenotypes and appears to be a good predictor of progression to Clinically Significant Macular Edema (CSME)”.

Professor Conceição Lobo, leading ophthalmologist and researcher from the University Hospital of Coimbra, Portugal



RetmarkerDR was developed and fine-tuned to process 45° and 50°, retinographies centred on the posterior pole (field 2).

RetmarkerDR can be deployed in several scenarios, but a simple desktop computer with the following requirements is sufficient:

#### Minimum Hardware Requirements

Intel Pentium 2.0 GHz or compatible

1Gb RAM memory (2Gb recommended)

1024x768px graphics card

10Gb free Hard Disk space (20Gb recommended due to the image database)

Mouse and keyboard

#### Software Requirements

Microsoft Windows XP with Service Pack 3

RetmarkerDR is a patented and CE marked Medical Device.

#### Our Partners

AIBILI is an internationally renowned Scientific Institute, dedicated to help the development of new products for health imaging, pharmaceutical and biotechnology companies. Independent validation studies have been performed at the LMU (Ludwig-Maximilians University) Eye Clinic in Munich, Germany.

## Features

**Follow-up of patients with retinal diseases (mainly Diabetic Retinopathy).**

**Analysis and Comparison of the patient's retinographies acquired over time.**

**Prediction of Diabetic Retinopathy progression on mild NPDR stage to CSME by using Microaneurysms Turnover as biomarker over a 1-2 years period with follow-up every 6 months.**

**Automatic Detection of changes in the patient's retina.**

**Storage of structured clinical information to document the analysis, including blood test results.**

**Advanced analysis tool set to manage and explore images allowing:**

- **Automatic Image Enhancement.**
- **Co-registered Side-by-Side visit comparison (up to 4 images), including Zoom, Pan and Magnifying Glass tools.**
- **Measurement Tools, including distance to fovea.**
- **Data structured in layers that can be shown/hidden.**

#### About Retmarker

Leading provider of innovative products that help prevent the loss of vision in an ageing population.

Retmarker is available in several product versions:

- RetmarkerC provides a quick assessment of retinal changes over time;
- RetmarkerDR, a biomarker for the progression of Diabetic Retinopathy, allowing ophthalmologists to manage diabetic retinopathy progression;
- Retmarker Screening enables the implementation of cost-effective Diabetic Retinopathy screening programs.

Retmarker innovative solutions are driven by key partnerships with prestigious universities, hospitals and scientific institutions.

For more information: [info@retmarker.com](mailto:info@retmarker.com)