

# FibroMeters :

## the most reliable tests of liver fibrosis

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### Presentation

Recently, non-invasive diagnostic tools of liver fibrosis have been implemented. The main tools are:

- blood tests, among which Fibrotest and FibroMeter are the most developed;
- ultrasonographic elastometry (Fibroscan).

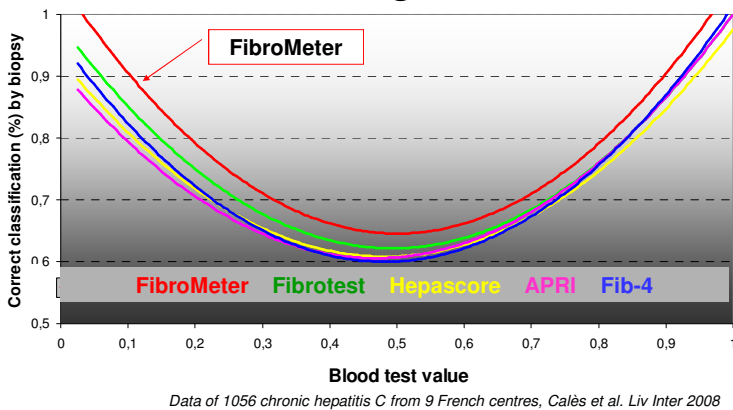
FibroMeters are the best performing tests for the diagnosis of significant fibrosis. A FibroMeter specific for viral cirrhosis provides very high diagnostic performance. The combination of FibroMeter and Fibroscan significantly improves the diagnostic performance of each test.

Owing to its diagnostic performance profile, predictive values (individual diagnostic performance), diagnostic reproducibility and robustness are excellent, thus assuring high reliability of FibroMeter for an individual diagnosis.

### FibroMeters characteristics

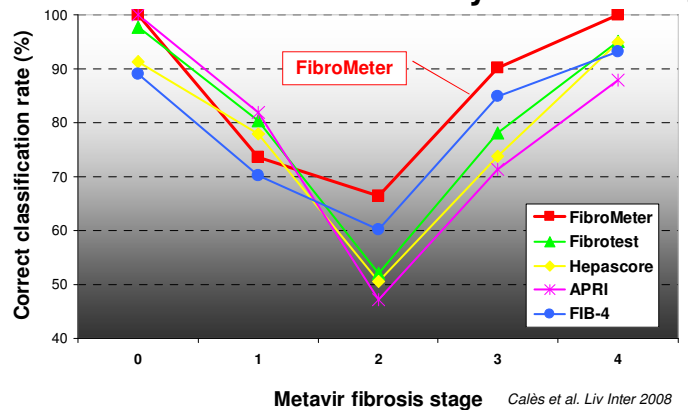
The main characteristics of FibroMeter for viral hepatitis are shown in the following figures. The data are based on a cohort of 1056 chronic hepatitis C patients with liver biopsy from 9 French centres (Calès, *Liv Int* 2008).

#### Performance for significant fibrosis



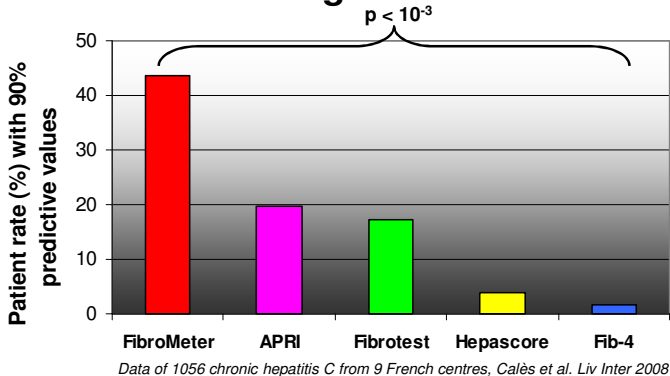
Overall performance significantly higher for significant fibrosis

#### Correct classification rate by fibrosis stage



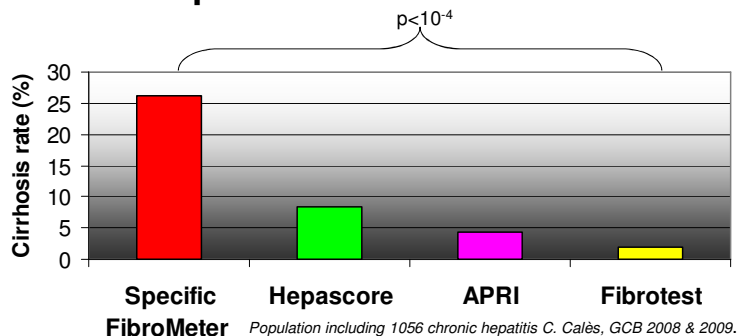
The only test with 100% correct classification at the extremes explaining the high predictive values

#### Prediction of significant fibrosis



Rate of predictive values significantly higher for significant fibrosis

#### Rate of detected cirrhosis by predictive positive values $\geq 95\%$

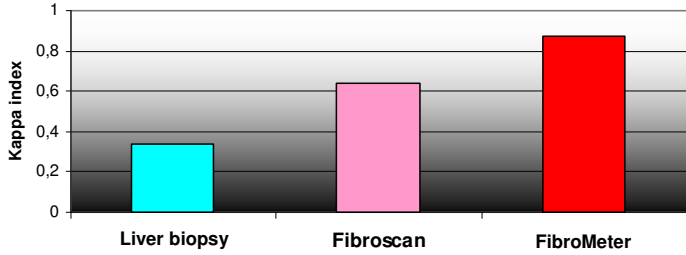


Rate of positive predictive value significantly higher for cirrhosis



## Reproducibility according to tests

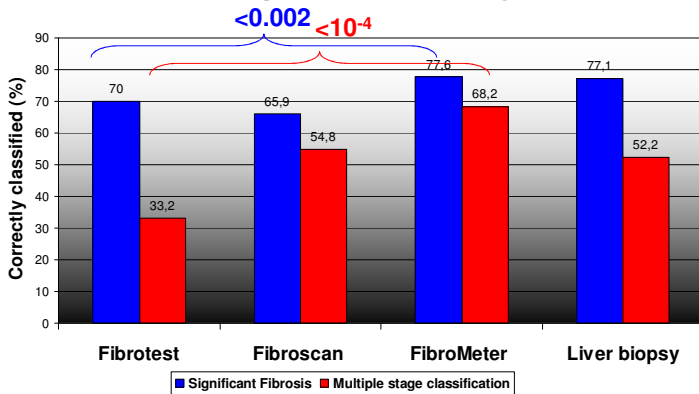
- The reference is expert or consensus liver biopsy
- Methods are compared for Metavir stages



The highest reproducibility rate among diagnostic methods for fibrosis

Calès, GCB 2008

## Diagnostic performance for significant fibrosis vs that of classification in multiple fibrosis stages

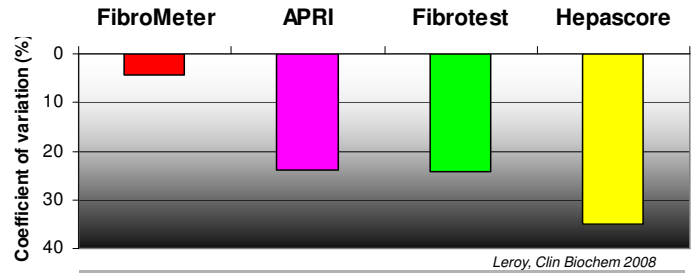


Boursier, JFHOD 2010, 349 hepatitis C for tests, 205 for LB

In real life conditions, the fibrosis classification in multiple stages by FibroMeter outperforms that of other tests even liver biopsy (the reference is liver biopsy read by an expert)

## Diagnostic reproducibility of blood tests

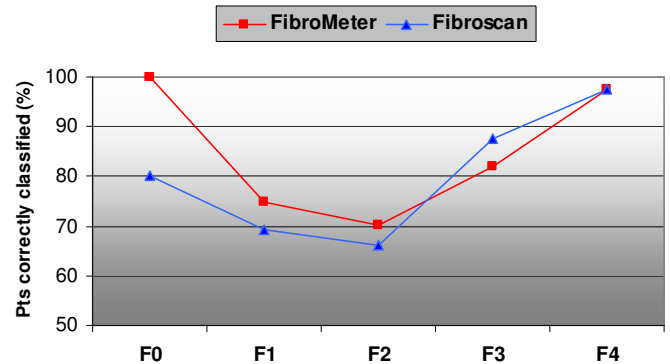
Diagnostic cut-off among 9 centres



Leroy, Clin Biochem 2008

The highest diagnostic reproducibility rate among diagnostic blood tests

## Comparison of classification rate for significant fibrosis between FibroMeter and Fibroscan



Boursier, JFHOD 2010, population of 349 hepatitis C

The FibroMeter is more performant in stages F0 to F2 and Fibroscan in stage F3

## FibroMeter specificities

- ➔ **Cause-specific tests:** **Virus:** companion test **InflaMeter** for necrotic-inflammatory activity, metabolic steatosis (NAFLD), alcohol
- ➔ Direct measurement of liver fibrosis amount (in %):
  - With the option **area of fibrosis**
- ➔ **Expert system** (FibroMeter for viral hepatitis)
  - **Increased reliability of results in clinical practice** by exclusion of discordant markers
- ➔ **Individualized diagnosis:**
  - **By confirming or excluding fibrosis or cirrhosis** (100% predictive values for FibroMeter for viral hepatitis)
- ➔ **Synergy with Fibroscan**
  - **Increased performance and elimination of around 2/3 of discordances between these two tests**

## The procedure

The patient goes to a standard biology medical laboratory with a specific prescription. The blood markers of FibroMeters are determined by the laboratory.

Results are also provided and sent by the laboratory by mail, they are also available on line (access codes: [www.biols.fr](http://www.biols.fr)).

## FibroMeters : conclusion

The gain in performance and predictive values assures excellent diagnosis reliability. This intrinsic reliability is further optimized in clinical practice through a gain in reproducibility and robustness, as well as an expert system. Thanks to their multiple specificities, FibroMeters offer high-performance diagnoses, and even a **very reliable** personal diagnosis.

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**References:** more than 20 in Hepatology, J Hepatol, Liv Intern, Aliment Pharmacol Ther, Eur J Gastroenterol Hepatol, Haemophilia, Clin Biochem, Gastroenterol Clin Biol : [www.biols.fr](http://www.biols.fr)

The FibroMeter is validated by the French health authority in untreated chronic hepatitis C in adults.

