



## Computer-aided diagnosis in mammography

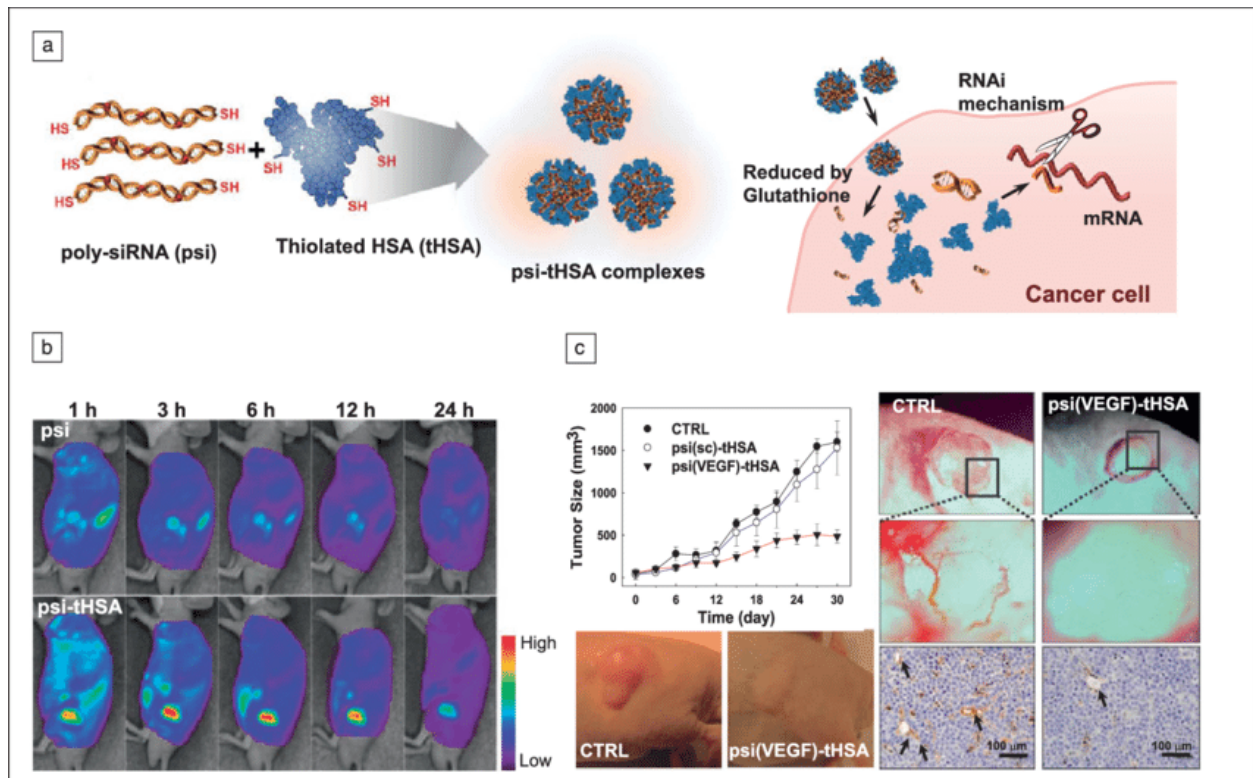


Typically, a CAD session starts with the radiologist reading the mammogram to look for suspicious patterns in it followed by the CAD system scanning the mammograms and looking for suspicious areas. Finally, the radiologist analyzes the prompts given by the CAD system about the suspicious areas.



## Tumor imaging and treatment

Imaging can help make be used to make cancer treatments less invasive by narrowly focusing treatments on the tumors. For instance, ultrasound, MRI, or CT scans may be used to determine exact tumor locations so that therapy procedures can be focused on the tumor, minimizing damage to surrounding tissue.



**Angiography** is used to check the health of your blood vessels and how blood flows through them. It can help to diagnose or investigate several problems affecting blood vessels, including: atherosclerosis – narrowing of the arteries, which could mean you're at risk of having a stroke or heart attack.

### **Bone strength and osteoporosis**

Your bones are usually dense and strong enough to support your weight and absorb most kinds of impacts. As you age, your bones naturally lose some of their density and their ability to regrow (remodel) themselves. If you have osteoporosis your bones are much more fragile than they should be, and are much weaker.

### **Tortuosity**

Arterial tortuosity syndrome (ATS) is an extremely rare genetic disorder characterized by lengthening (elongation) and twisting or distortion (tortuosity) of arteries throughout the body. Arteries are the blood vessels that carry oxygen-rich blood away from the heart.

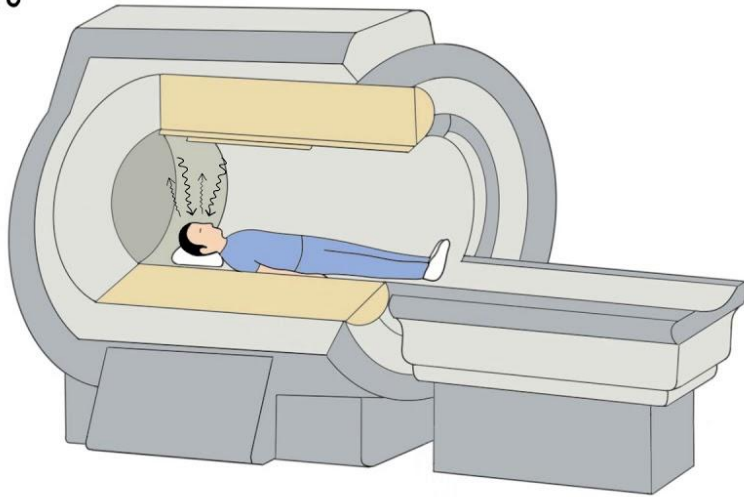
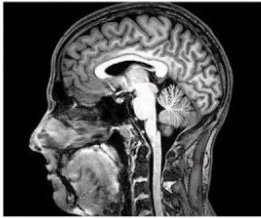
## FMRI

# FUNCTIONAL MAGNETIC RESONANCE IMAGING (fMRI)

-INVOLVES EXPOSING THE BRAIN TO MULTIPLE MAGNETIC FIELDS

-HYDROGEN PROTONS RESPOND BY EMITTING AN ELECTROMAGNETIC SIGNAL

-SCANNER RECEIVES SIGNAL, USES IT TO CREATE HIGH-RES IMAGE OF THE BRAIN:



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**Molecular imaging** is a growing research discipline aimed at developing and testing novel tools, reagents, and methods to image specific molecular pathways in vivo, particularly those that are key targets in disease processes.

# Molecular imaging & therapy

