

# iNSiGHT

## Fully Shielded DXA System



- Easy to use
- Low-Dose Radiation
- Fast Scans
- Non-invasive
- Quantitative
- Reproduceable
- Self-Shielded
- Reproduceable
- Cost Effective

Scintica:

**OsteoSys**

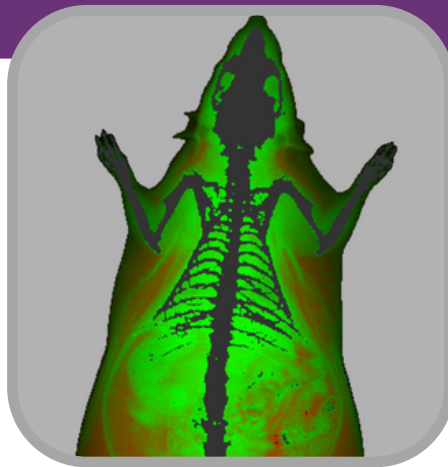
# iNSiGHT DXA

The iNSiGHT is a fully shielded DXA (DEXA, dual-energy x-ray absorptiometry) system designed specifically for preclinical small animal models such as mice and rats. The DXA technology provides quantification of body composition, such as bone mineral density (BMD), and measures of lean and fat mass, with exceptional image quality.

Osteosys has provided clinical body composition analyzers for over 20 years, with around 20,000 systems installed worldwide. With a strong background in research and development, Osteosys took their experience with clinical DXA technology and created the iNSiGHT system. To provide researchers with a state-of-the-art tool to study body composition non-invasively, with low dose radiation, suitable for longitudinal studies.



X-Ray



Lean vs Fat Mass



Bone Mineral density

## Overview

Preclinical applications of DXA are diverse, ranging from metabolic bone diseases such as osteoporosis, arthritis, a wide variety of metabolic disorders including diabetes and obesity, and musculoskeletal pathologies such as bone regeneration and muscle wasting diseases.

Measurements of body composition are taken quickly, are non-invasive, and use very low-dose radiation; combined this makes the iNSiGHT system ideal for following the same animal over the course of a longitudinal study. DXA does not require any pre-treatment of the animal, contrast, or substrate injection, to acquire the data. It is also non-destructive and provides highly accurate and reproducible measures.

# iNSiGHT Measurements

- Bone mineral density (BMD) in g/cm<sup>2</sup>
- Bone mineral content (BMC) in g
- Bone area in cm<sup>2</sup>
- Fat tissue as percentage and weight in % and g
- Lean tissue as percentage and weight % and g
- Total weight in
- Monitoring of body temperature, respiratory rate, ECG, and heart rate
- ECG and respiratory signals may be exported

Additionally, specific bone length measurements can be drawn on the 2D x-ray image. The quantitative results may be tracked over time on the same animal, and/or exported into a comma separated value format for data compilation and comparison.

The screenshot displays the iNSiGHT software interface. At the top, it shows 'Animal's Name: RAT HFD-1' and 'DFA (7)' / 'DR (6)'. Below this is a table with columns: Index, Days (Weeks), Measured Date, Analyzed Date, ROI Size, and X-ray Description. The table contains 7 rows of data. To the right of the table is a 'Compare' button. Below the table is another table with columns: ROI, BMD, BMC, Bone Area, Tissue Area, Fat%, Fat(g), Lean(g), and Total Weight. This table contains 2 rows of data. On the right side of the interface, there is a 2D x-ray image of a rat spine with a green outline around a specific vertebra, labeled as ROI(3). A tooltip above the ROI says 'ROI(3) is being set. LINE: After drawing the path, release the left-click state to end.' Below the image are several buttons: 'FINEXT', 'FINBACK', 'FIDEL', 'FICOPY', 'FITIP', 'FIMOVE', 'FIDROP', 'FINSET', 'FINOFF', and 'FIN'. At the bottom right, there is a 'Save' button.

Index	Days (Weeks)	Measured Date	Analyzed Date	ROI Size	X-ray Description
7	71 (10 w)	2018-10-12 18:52:00	2022-06-02 08:38:29	27777	70.8kVp(8.8mA)
6	63 (9 w)	2018-09-04 18:46:49	2022-06-02 08:33:12	27777	70.8kVp(8.8mA)
5	54 (8 w)	2018-08-27 18:46:30	2022-06-04 18:37:42	37878	70.8kVp(8.8mA)
4	46 (7 w)	2018-08-20 18:44:47	2022-06-04 18:37:39	37878	70.8kVp(8.8mA)
3	42 (6 w)	2018-08-13 18:42:46	2022-06-04 18:37:38	37878	70.8kVp(8.8mA)
2	35 (5 w)	2018-08-06 18:41:25	2022-06-04 18:37:40	37878	70.8kVp(8.8mA)

ROI	BMD	BMC	Bone Area	Tissue Area	Fat%	Fat(g)	Lean(g)	Total Weight
ROI1	0.191	7.346	38.302	111.226	21.827	67.884	314.757	408.568
ROI2	0.254	8.405	3.918	1.732	16.398	1.706	5.112	11.384

# Applications

## Metabolic Bone Diseases

The iNSiGHT system can be used to assess the progression or regression of disease in response to a therapeutic regime by measuring bone mineral density and content, measuring bone length, and a 2D x-ray image is provided to visualize any imperfections or changes which may be occurring within the bone structures

## Musculoskeletal Diseases

The iNSiGHT system can be used to assess the progression or regression of disease in response to a therapeutic regime by measuring changes in bone mineral density and content, and/or by measuring changes in fat and lean mass over time.

## Arthritis

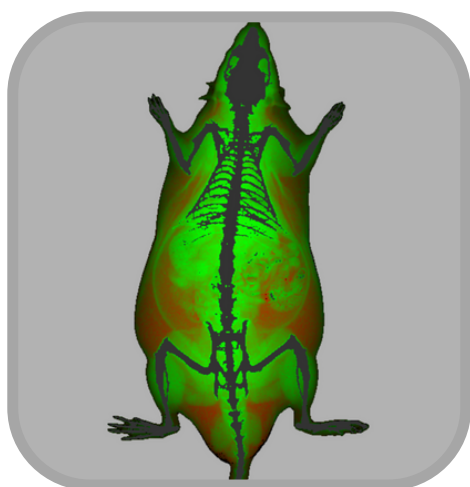
The iNSiGHT system can be used to assess the progression or regression of disease in response to a therapeutic regime by measuring changes in bone mineral density and content in the effected joints. Often these changes are seen earlier in the disease progression, while therapies may still be effective, prior to being visible on a traditional x-ray image.



# Applications

## Drugs Safety & Toxicology

Drug safety and toxicology studies are key to the progression of target compounds progressing to clinical trials. In addition to efficacy of the target compound on their intended pathology, it is also very important to study their safety and potential toxic effects, some of these effects may be seen by studying changes in either the bones or fat and lean tissues. The iNSiGHT system can be used to assess changes in body composition in response to the administration of a target compound at an effective dose. This can be done by looking for changes in bone mineral density and content, and/or by measuring changes in fat and lean mass over time.



## Metabolic Bone Diseases

The iNSiGHT system can be used to assess the progression or regression of disease and body composition measurements in response to a therapeutic regime by measuring changes in fat and lean mass over time. The colorimetric image allows for the differentiation, by way of regions of interest, of visceral and subcutaneous fat, which may play a key role in further understanding these pathologies.

# Scintica:

562 Waterloo St., Upper Unit  
London ON  
N6B 2P9

**TEL:** +1 519 914 5495

**FAX:** +1 226 884 5502

**WEBSITE:** [www.scintica.com](http://www.scintica.com)

**EMAIL:** [info@scintica.com](mailto:info@scintica.com)



## *OsteoSys*

Room 903, JnK Digital Tower, 26, 111,  
Digital-gil, Guro-gu, Seoul,  
South Korea

**TEL:** +82-2-6124-5900