Opportunities for Improved Management of Cancer Through Imaging

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First, Use What We Have

- There are excellent (but not perfect) existing tools to detect cancer earlier.
- We must make these accessible and use them to maximum advantage

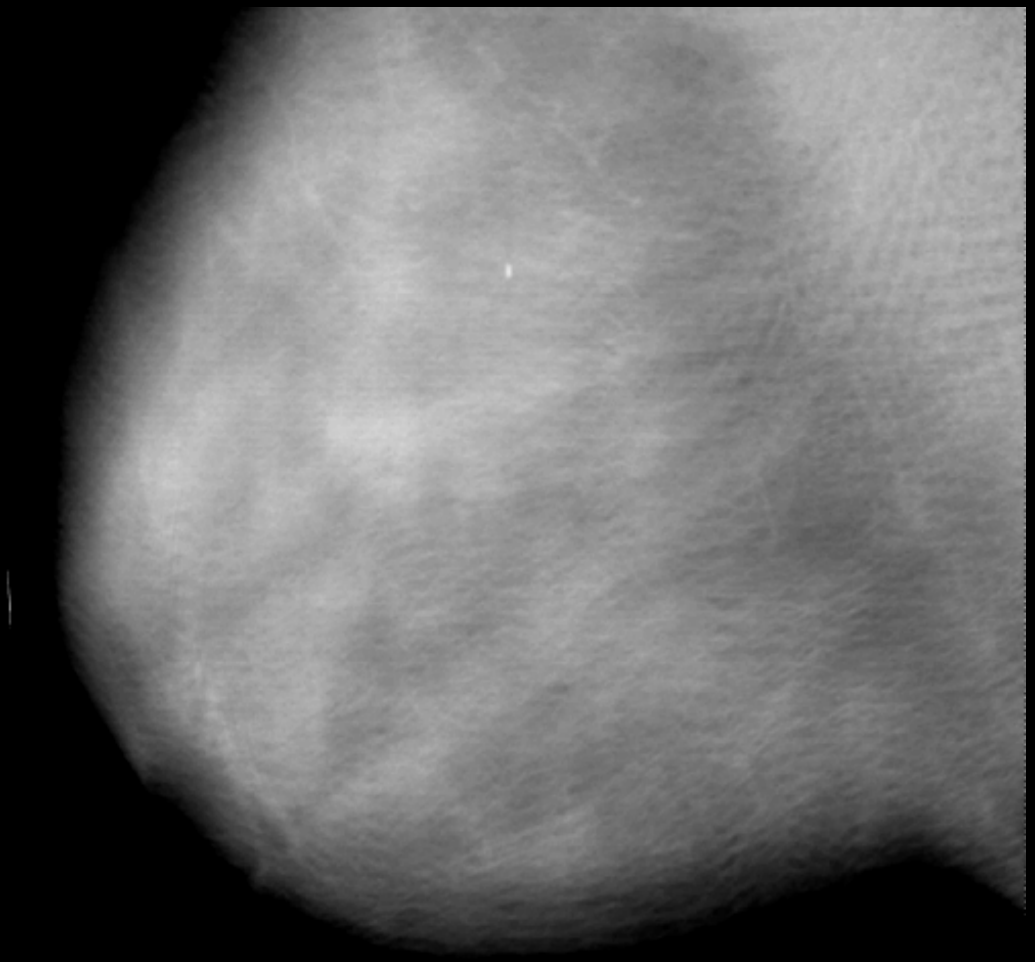
Where are we going? Use of Imaging in Cancer

- Detection of cancer

Use of Imaging in Cancer

- Detection of cancer
- Diagnosis/ prognosis/prediction
- Localization
- Guidance of therapy
- Monitoring response to therapy

Digital Breast Tomosynthesis



“Airport Scanner” – A 2-Stage Process

- A simple innocuous screening test should be followed (if +ve) by a more definitive image test to confirm the presence and location of disease.

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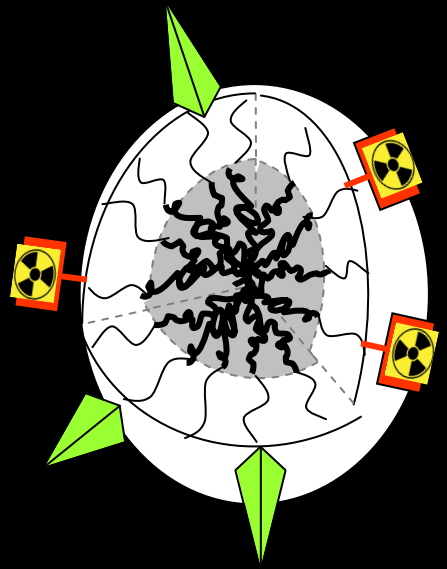
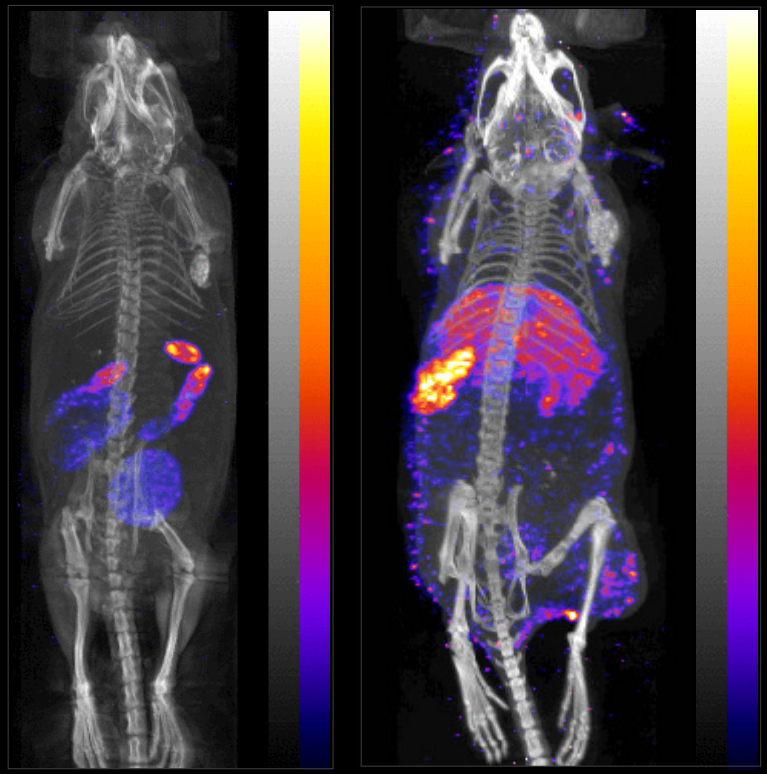
Use Cancer Biomarkers to Create More Sensitive and Specific Imaging Techniques Through Molecular and Functional Targeting

eg micelle-based radiopharmaceuticals targeted to peptide growth factor receptors for imaging breast cancer.



^{111}In

EGF



^{111}In-DTPA 4 h

^{111}In-micelles 48 h

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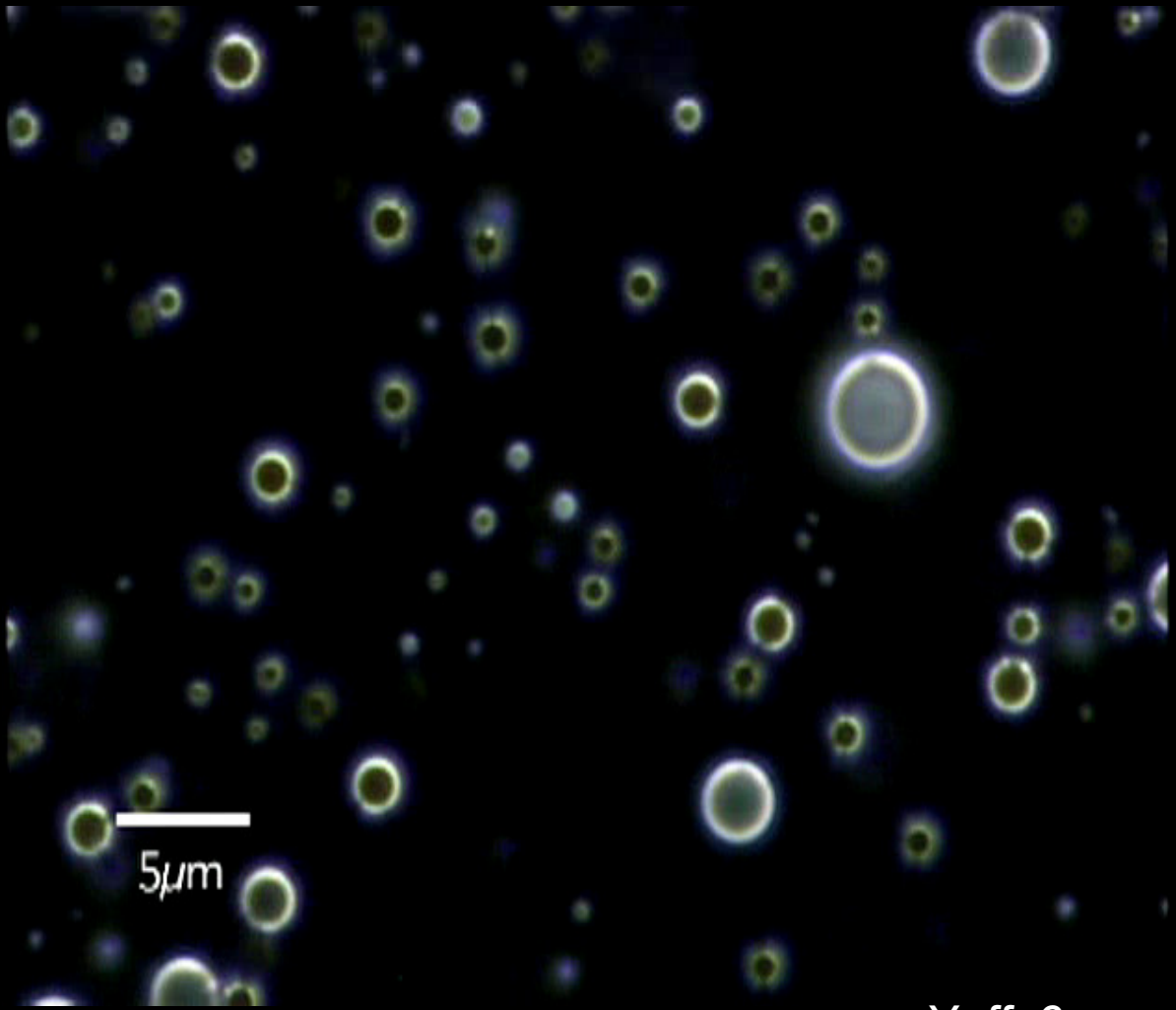
Microbubbles

Can be imaged with ultrasound



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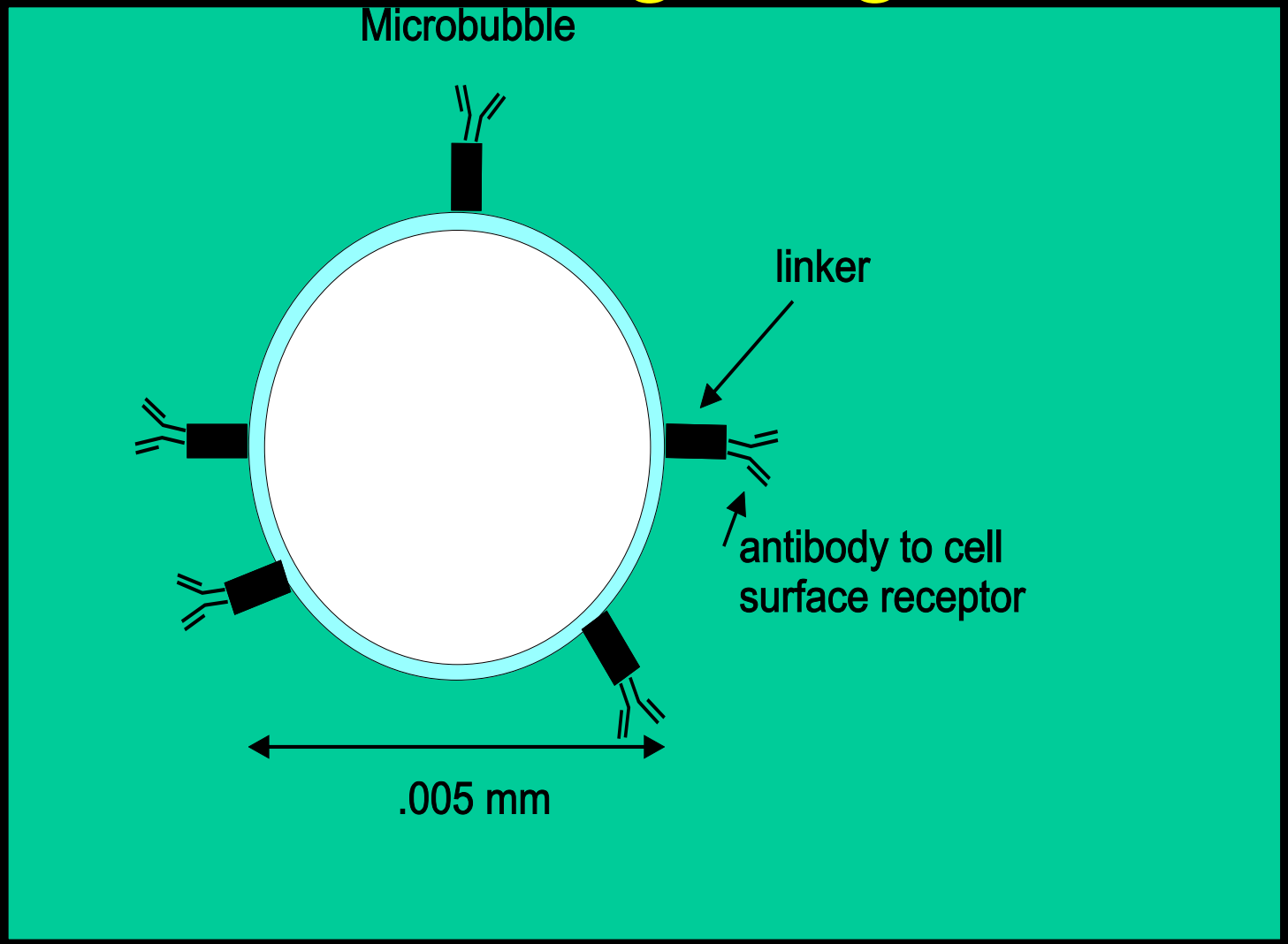
PHILIPS

Targeting



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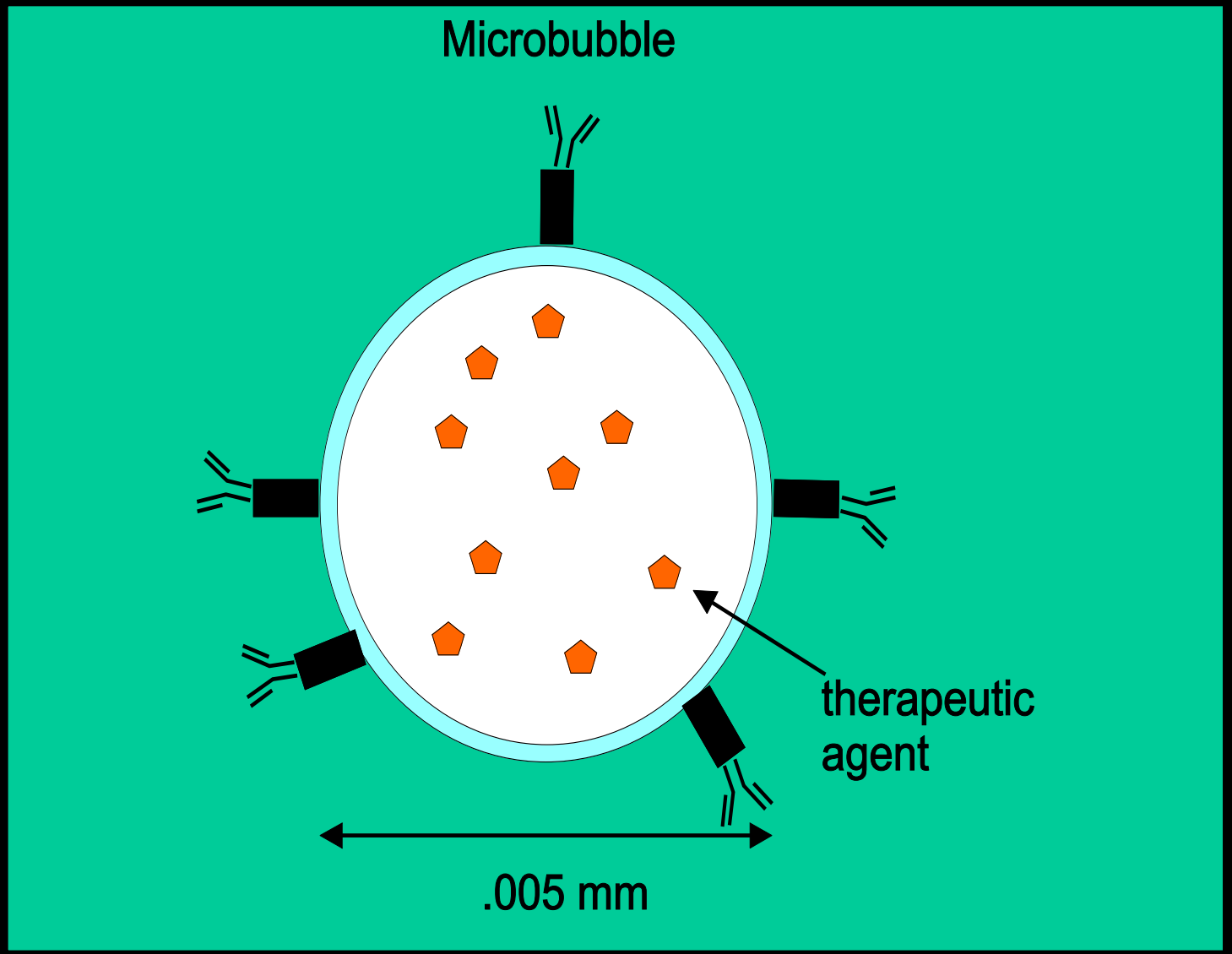
Loading with Therapeutic



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Slide Acknowledgments

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- Slide #7: Yaffe 5 – Use cancer biomarkers…" – Images of targeted radiopharmaceuticals. Prof. Ray Reilly, Prof Christine Allen, Dept. of Pharmacy, University of Toronto
- Slides #s 8 and 9 "Microbubbles" – Prof. Peter Burns, Dept. of Medical Biophysics, University of Toronto