# Prof. Dr. Dirk Drasdo

Head of Research Group “Multi-cellular Systems Biology” – INRIA Paris-Rocquencourt, France and The Interdisciplinary Center for Bioinformatics University of Leipzig and IfADo Dortmund

C-TIP-HCC Co-Coordinator

## Role in LiSyM-Caner

- Co-coordinator and project leader in C-TIP-HCC
- Image analysis & 3D tissue model generation
- Utilization of parameters generated by SMART-NAFLD and C-TIP-HCC for mathematical multi-scale modeling of NAFLD/MASLD-based HCC without cirrhosis
- Integration of multiscale models in a new modeling software (CompuTiX)

## Expertise

- Development of agent-based models and multi-scale models of multicellular tissue organisation covering developmental biology, in vitro systems, tumor growth and liver, with three software tool generations
- Modeling of multi-cellular tissue organization
- Center-based models of growing tissues in various applications, mimicking of cells as individual agents, parameterized by measurable biophysical and biokinetic parameters
- Process chain parameterizing single-cell-based tissue models out of image data

## Degrees

- Habilitation in Computer Science (University of Leipzig)
- PhD in Physics, MPI for Biophysical Chemistry and University of Göttingen
- Master degree in Physics, RWTH Aachen

Professional Experience

- Directeur de Recherche at INRIA
- Faculty position at the Mathematics Dept. and the Center for Systems Biology at University of Warwick, UK
- Research associate positions at the Max-Planck-Institutes for Mathematics in the Sciences in Leipzig research associate at Colloid and Interface Science in Golm
- Research associate at Institute for Medical Informatics, Statistics and Epidemiology at the Medical Faculty of Leipzig University

## Publications

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| 2025-08-02 | The interplay between biomechanics and cell kinetics explains the spatial pattern in liver fibrosis |
| 2025-02-06 | ECM1 attenuates hepatic fibrosis by interfering with mediators of latent TGF-beta1 activation.<br>*Gut* |
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| 2024-08-23 | A digital liver twin demonstrating the interplay between biomechanics and cell kinetics can explain fibrotic scar formation |
| 2024-02-16 | A liver digital twin for in silico testing of cellular and inter-cellular mechanisms in regeneration after drug-induced damage.<br>*iScience* |
| 2023-12-12 | Extracellular Matrix Protein 1 Attenuates Hepatic Fibrosis by Inhibiting TSP-, ADAMTS-, and MMP-Mediated Latent TGF-β1 Activation |
| 2023-08-01 | An integrative experimental and computational twin modeling approach to understand clonal dynamics in the normal liver<br>*Journal of Hepatology* |
| 2023-01-01 | Digital twin demonstrates significance of biomechanical growth control in liver regeneration after partial hepatectomy<br>*iScience* |
| 2022-09-30 | Guided interactive image segmentation using machine learning and color-based image set clustering.<br>*Bioinformatics* |