UNIVERSITÄT HEIDELBERG
ZUKUNFT SEIT 1386

HemaGuide: On-Premises Clinical Decision Support for Hematology Tumor Boards

Technology Offer

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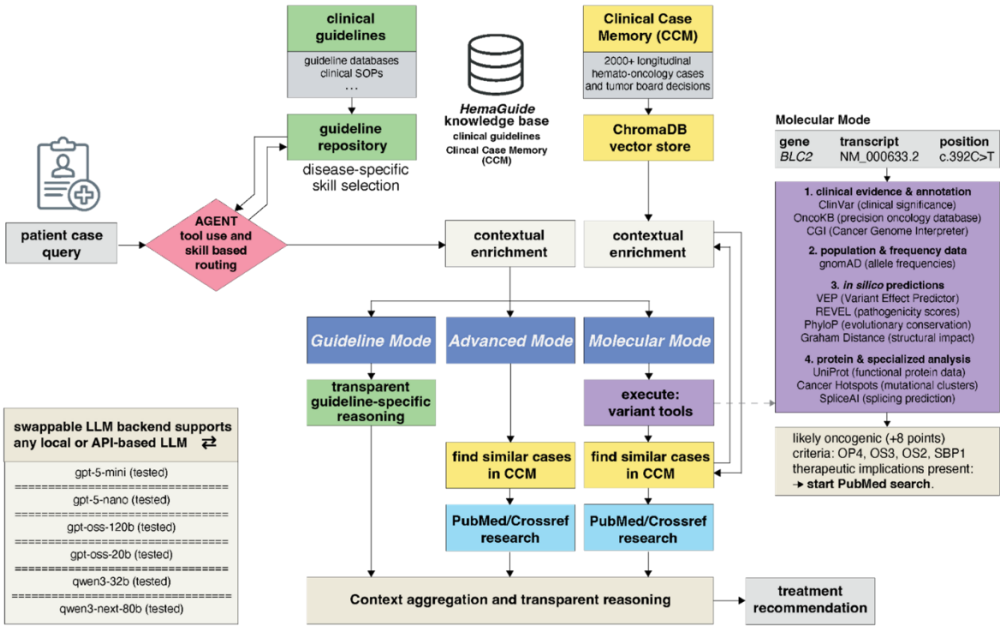

Category
Software-as-a-Medical-Device

Keywords
clinical decision support system in oncology / hematology

Development Stage
RUO, IIT in preparation

Seeking
Out-licensing

IP Status
EP 26175698.5 filed in April 2026

Background

Treatment decisions in hematological malignancies increasingly require integration of longitudinal histories, molecular profiles, comorbidities, prior therapies, and rapidly evolving evidence. Multidisciplinary tumor boards deliver high-quality recommendations but are resource-intensive and concentrated at specialized centers, limiting equitable access, especially for rare subtypes and smaller hospitals. Additionally, sensitive patient data must remain within hospital infrastructure to comply with data protection regulations, precluding cloud-based AI solutions. However, many institutions lack high-performance computing resources. Thus, there is an unmet need for a scalable, auditable clinical decision support system that operates locally on commodity hardware, preserves data privacy, and extends expert-level reasoning to routine workflows without demanding extensive computational infrastructure.

Contact
ScienceValue Heidelberg GmbH
Berliner Straße 47 | 69120 Heidelberg | Germany
+49 (0)6221 - 567435 | www.sciencevalue-heidelberg.de/en
ScienceValue.Heidelberg@med.uni-heidelberg.de

SVH ScienceValue Heidelberg

Technology

HemaGuide is a locally deployable, case-grounded AI agent that provides auditable clinical decision support for hematological malignancies. It transforms unstructured clinical documents into structured case representations, autonomously selects between guideline-, advanced-, and molecular-focused decision modes, and generates treatment recommendations grounded in disease-specific guidelines, a memory of >2,000 real-world tumor board cases, and current literature. In external validation on 555 cases and a prospective silent trial, HemaGuide achieved >81% concordance with expert tumor board decisions, with a hallucination rate of 0.3% and molecular analyses completed in under one minute. The vast majority of non-concordant cases involved alternative but medically legitimate treatment regimens rather than clinically inappropriate recommendations. The system is designed for on-premises deployment on commodity hardware, supporting data protection requirements and integration into hospital workflows.

The technology is a joint development of DKFZ, HI-STEM and Heidelberg University.

Benefits

- It can ease the burden on tumor boards and could provide functionality in <1 minute.
- Safe system, as hallucinations occurred in only 2 of 664 evaluated cases (0.3%) and no clearly oncogenic alteration was misclassified as benign.
- Provides transparent reasoning, linking recommendations to guidelines, similar historical cases, and literature to support auditability and clinician trust.
- Runs locally on commodity hardware within hospital infrastructure, ensuring patient data do not leave the site.
- The autonomous selection between the resource-saving guideline mode and the advanced- or molecular-focused decision modes ensures reasonable computational resource consumption.

Applications

- The underlying technology of HemaGuide is broadly applicable as medical decision support tool for any multidisciplinary tumor boards in oncology.
- HemaGuide itself is a clinical decision support system to complement the tumor boards.

Publications

- Julian Zoller et al, Clinical decision support in hematological malignancies using a case-grounded AI agent, *Nature Medicine* (2026). DOI: 10.1038/s41591-026-04494-4

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