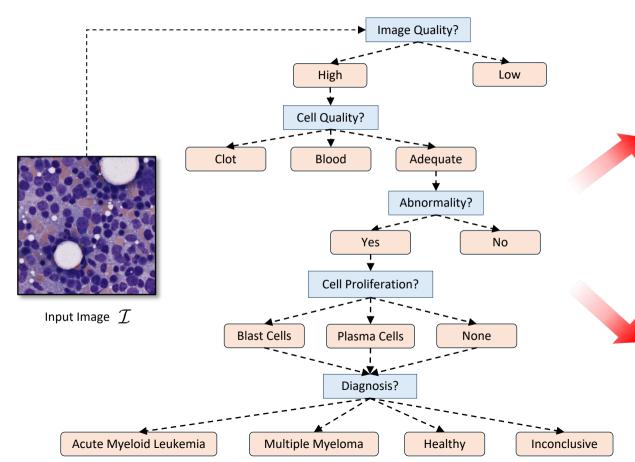
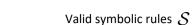
(a) Symbolic representation of clinical reasoning in blood cancer diagnosis



(b) Symbolic rules for generating and evaluating validity of clinical reasoning processes



- (Low image quality) → Inconclusive
- (High image quality ∧ Abnormality ∧ Plasma cell proliferation) → Multiple Myeloma
- (High image quality \(\Lambda \) No abnormality \(\rightarrow \) Healthy
 - (High image quality ∧ Abnormality ∧ Blast cell
 - proliferation) → Acute Myeloid Leukemia

Invalid symbolic rules $\bar{\mathcal{S}} - \mathcal{S}$

• (Low image quality) → Acute Myeloid Leukemia

• (High image quality ∧ Abnormality ∧ Plasma cell

(Low image quality Λ No abnormality) \rightarrow Healthy

(High image quality ∧ Abnormality ∧ Blast cell

proliferation) → Healthy

proliferation) → Healthy

Reward evaluation



which could be an early sign of blood cancer.





 X_4 I see. What is the diagnosis then?



blood sample is alarming, suggesting the

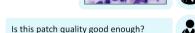


The prevalence of Myeloblasts in this patient's possibility of Acute Myeloid Leukemia.

Input Image ${\mathcal I}$









Synthesizing clinician-VLM conversations

Yes, the patch is of good quality, making it suitable

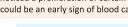


Conversational

dataset

 $\mathcal{D} = \{ \mathcal{I}, \{ X^t, Y^t \}_t \}$







 Y_3



