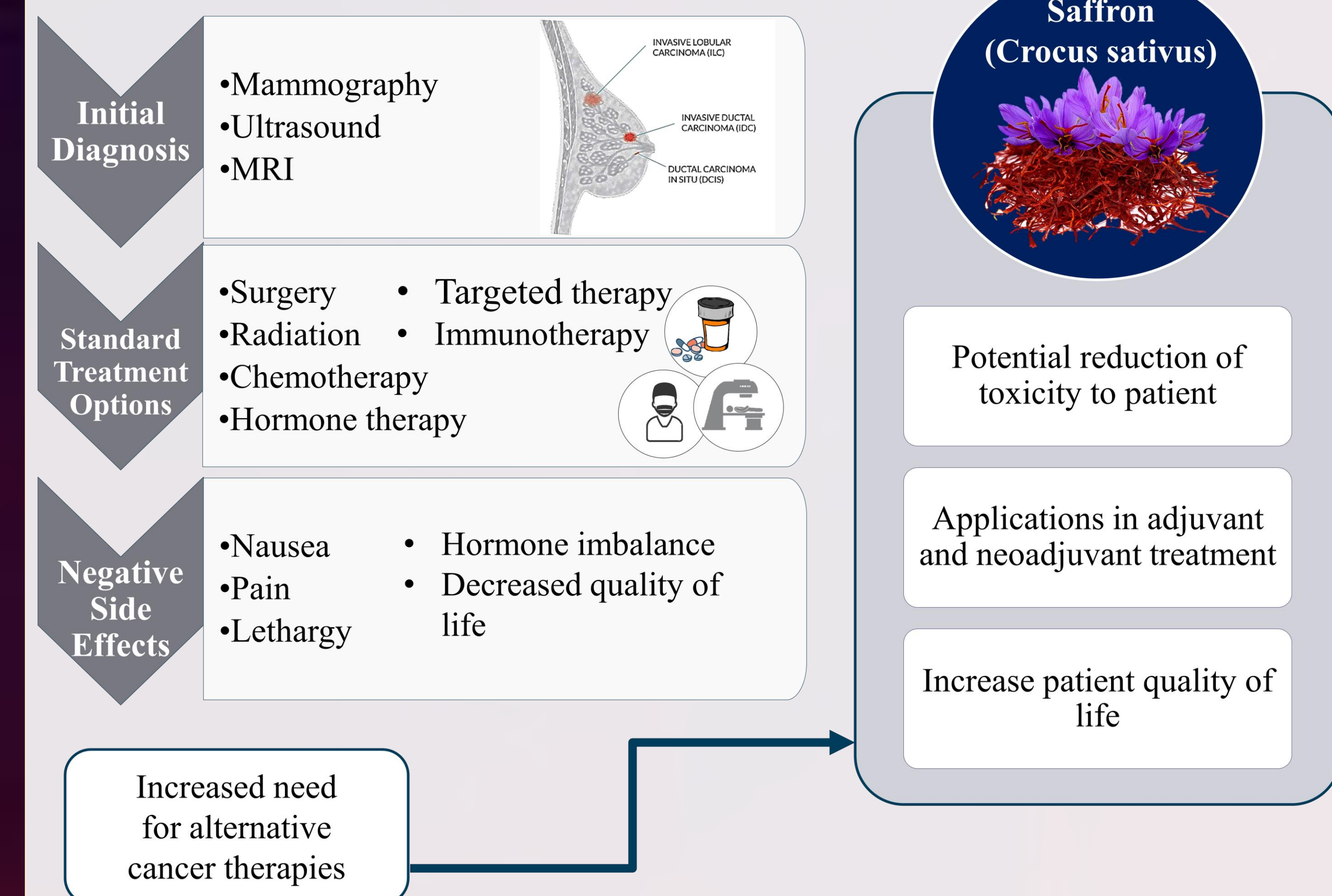


# Saffron (*Crocus sativus*) extract has anticancer activity through inhibition of migration and invasion potential of breast cancer cells

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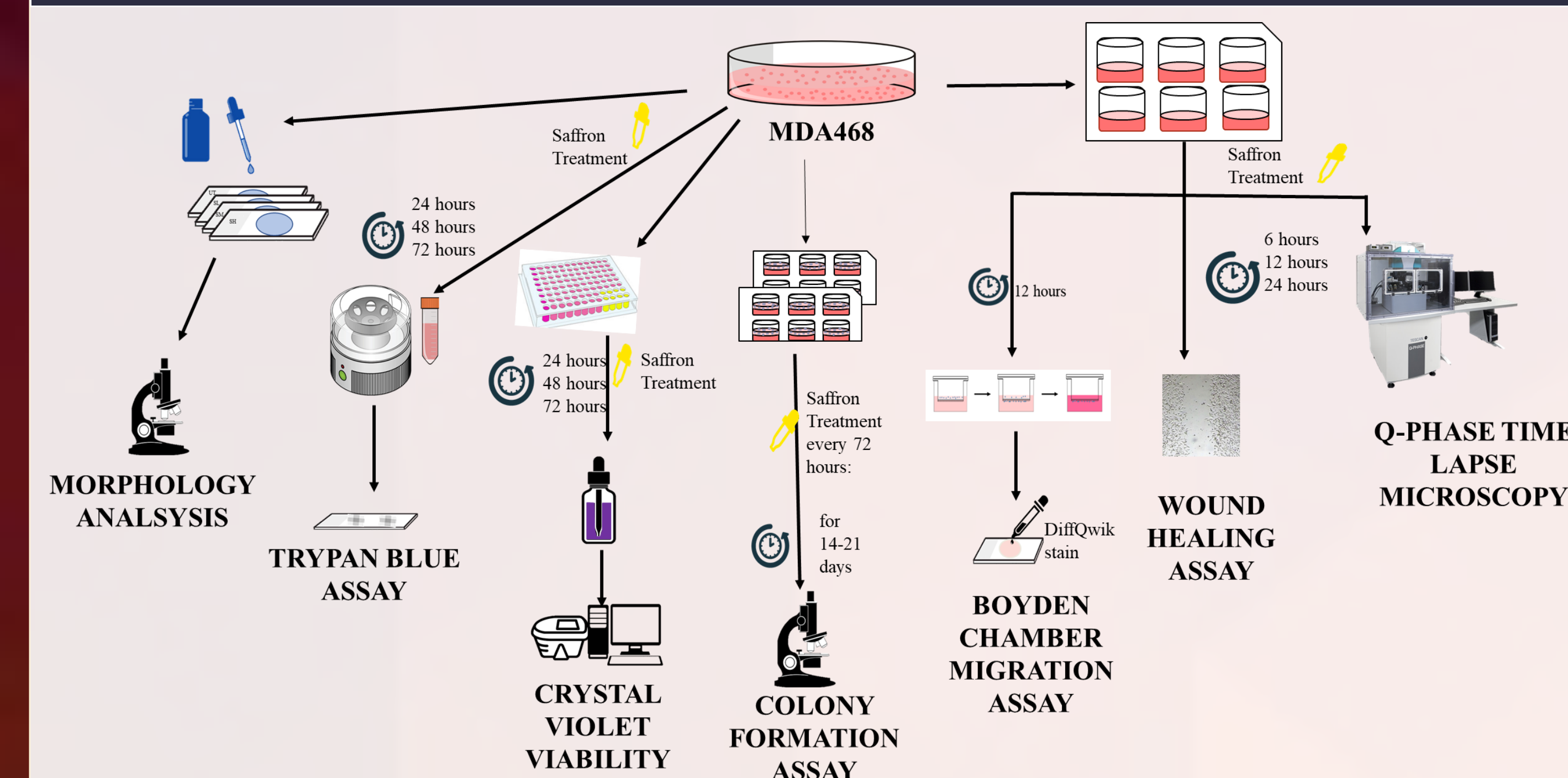
## INTRODUCTION



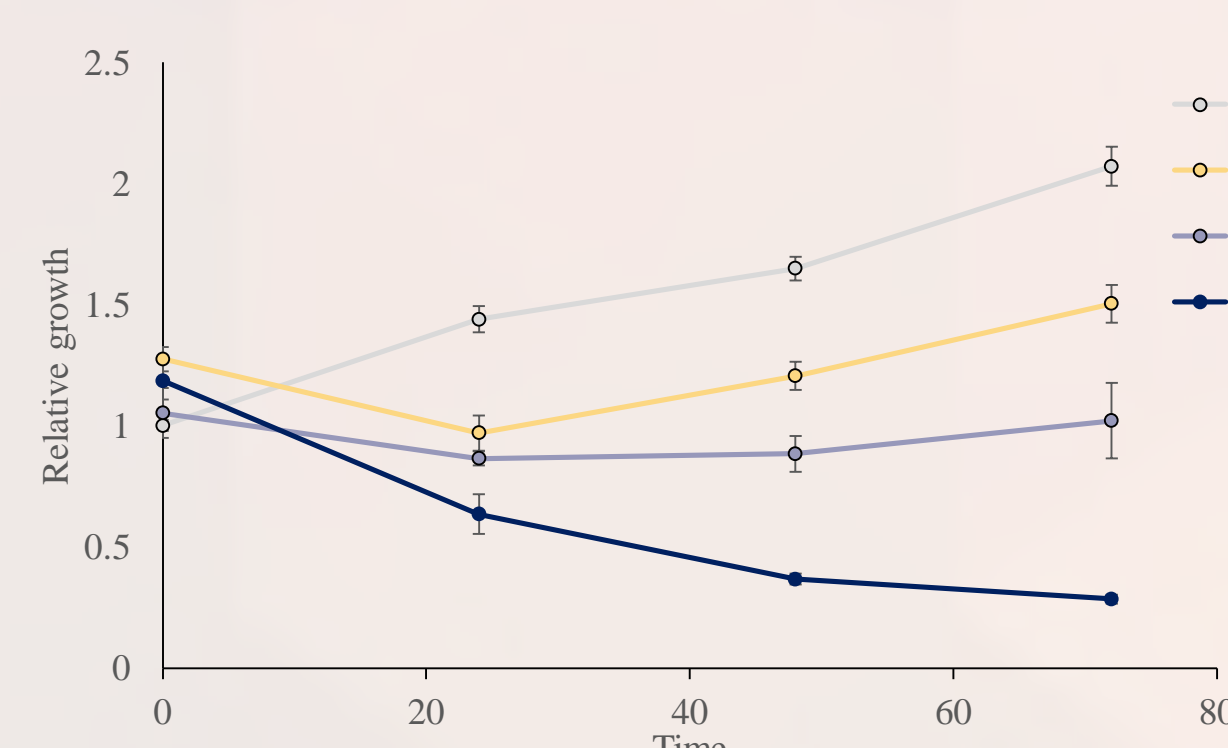
## HYPOTHESIS

Saffron was expected to have antitumor activity in MDA468 breast carcinoma cells

## METHODS



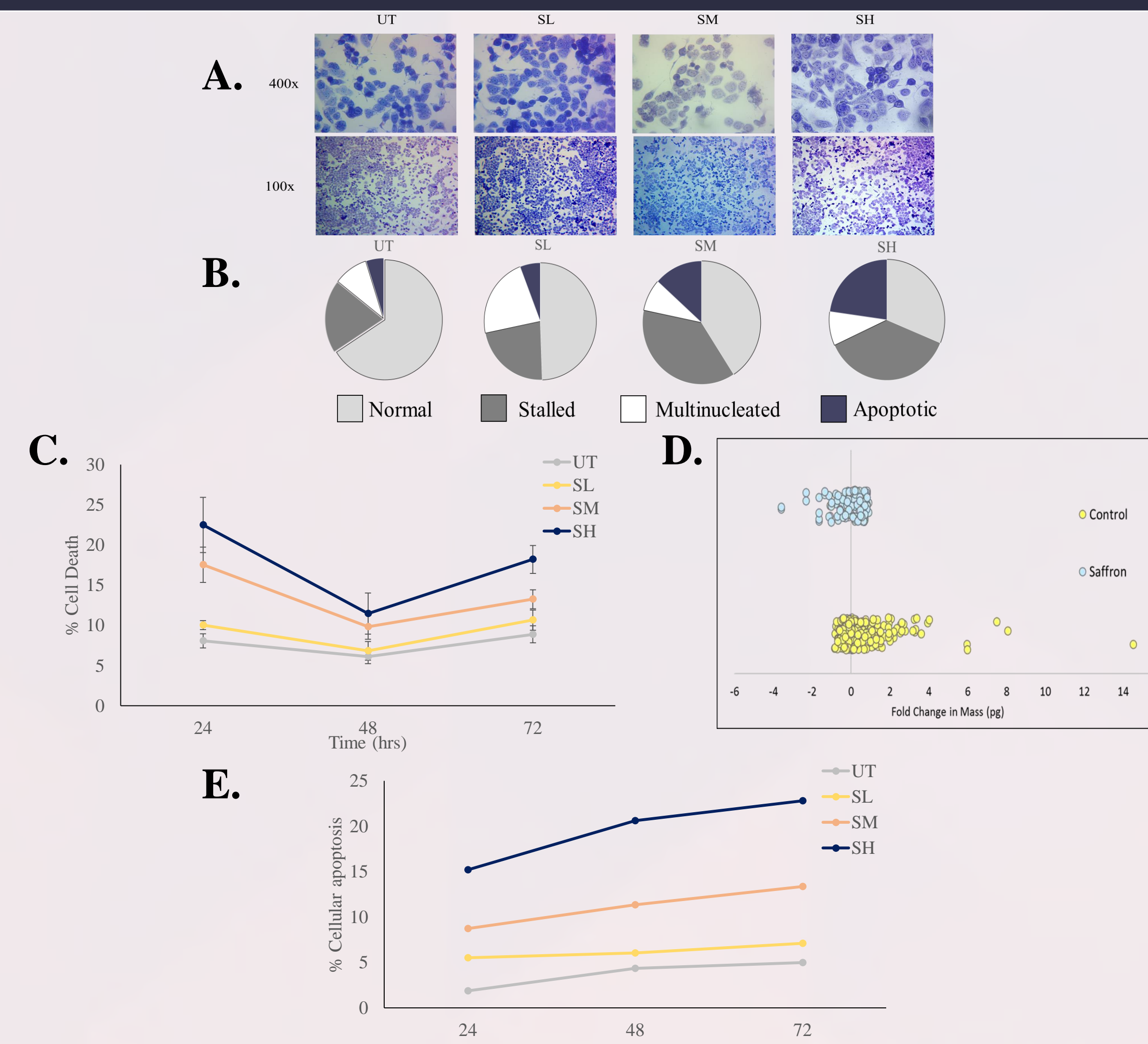
Saffron inhibits growth of MDA468 cells in a dose dependent manner



**Figure 1.** Comparison of relative growth as per crystal violet cell viability assay. **Table 1.** Concentration of saffron in various treatment groups.

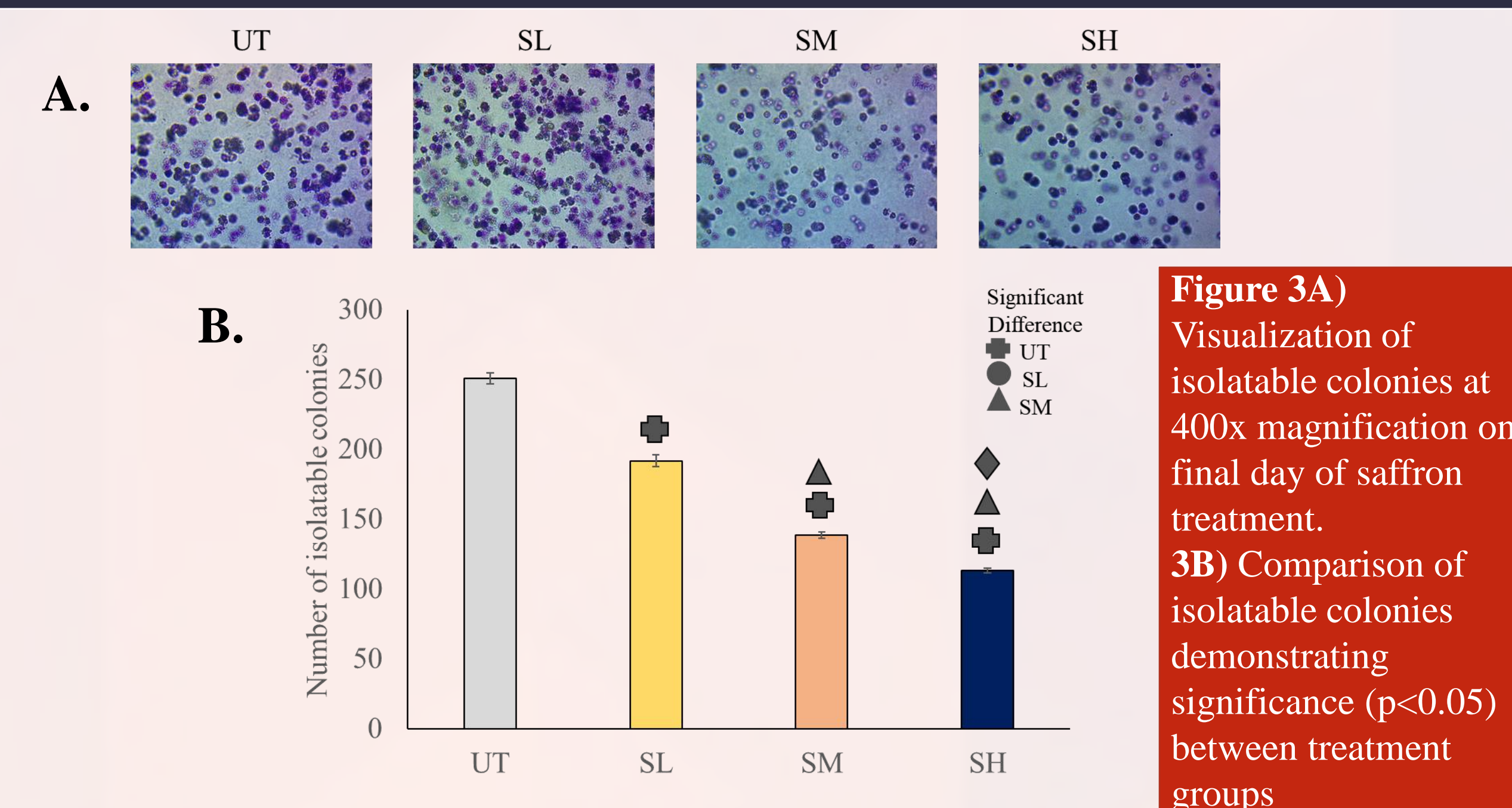
Treatment	Concentration
Untreated (UT)	0 ug/ mL
Saffron Low (SL)	100 ug/ mL
Saffron Medium (SM)	250 ug/ mL
Saffron High (SL)	500 ug/ mL

## Saffron decreases cell viability in a time and dose dependent manner

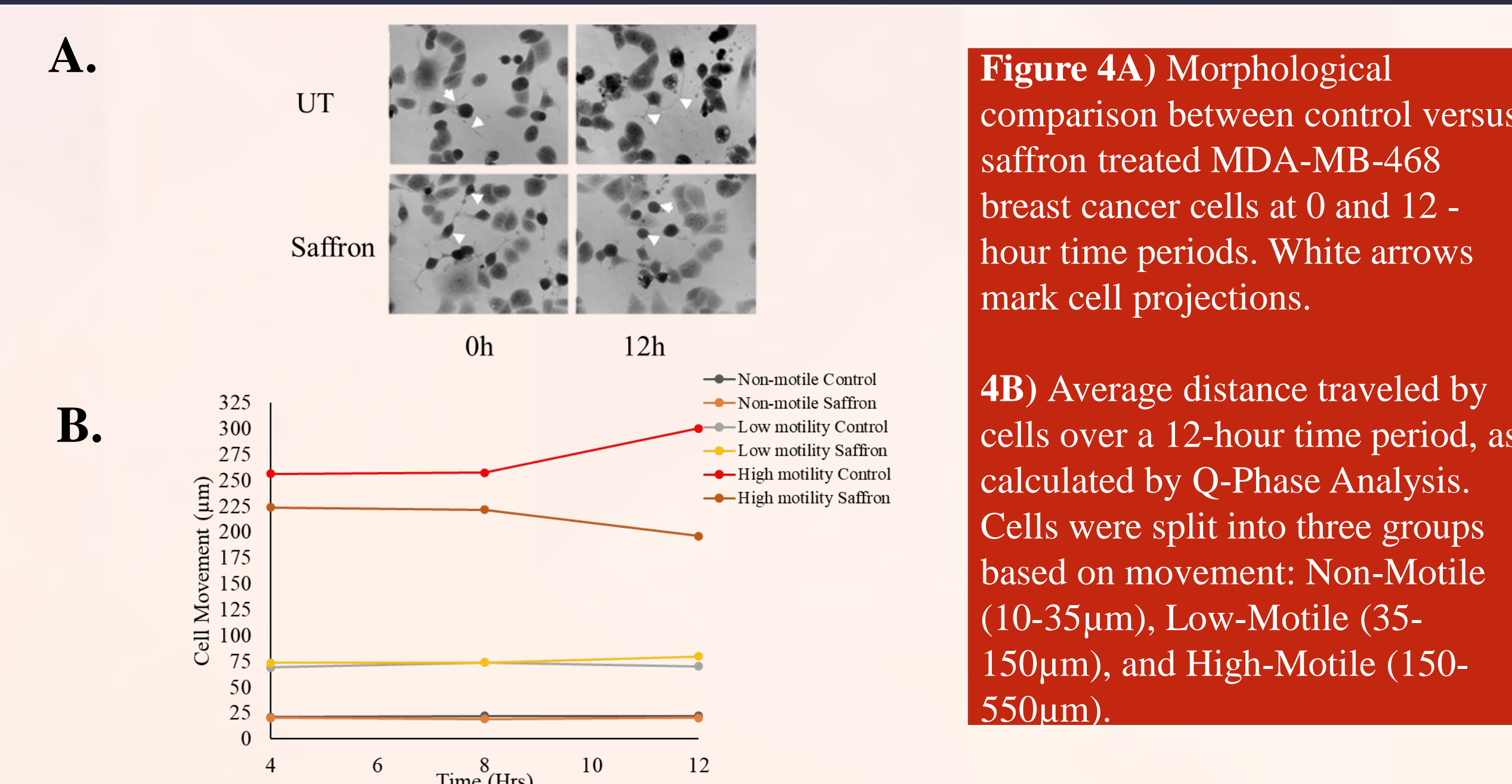


**Figure 2A)** Comparison of cell confluency at 100x and 400x magnification. **2B)** Percentage of normal, stalled, multinucleated, and apoptotic cells between 0-72 hours. **2C)** Percentage cell death calculated by trypan blue assay between 24-72 hours. **2D)** Percentage fold changes in mass in control and saffron groups as per Q-phase analysis. **2E)** Comparison of percentage cellular apoptosis between 24-72 hours.

## Saffron induces marked reduction in tumorigenicity of MDA468 cells



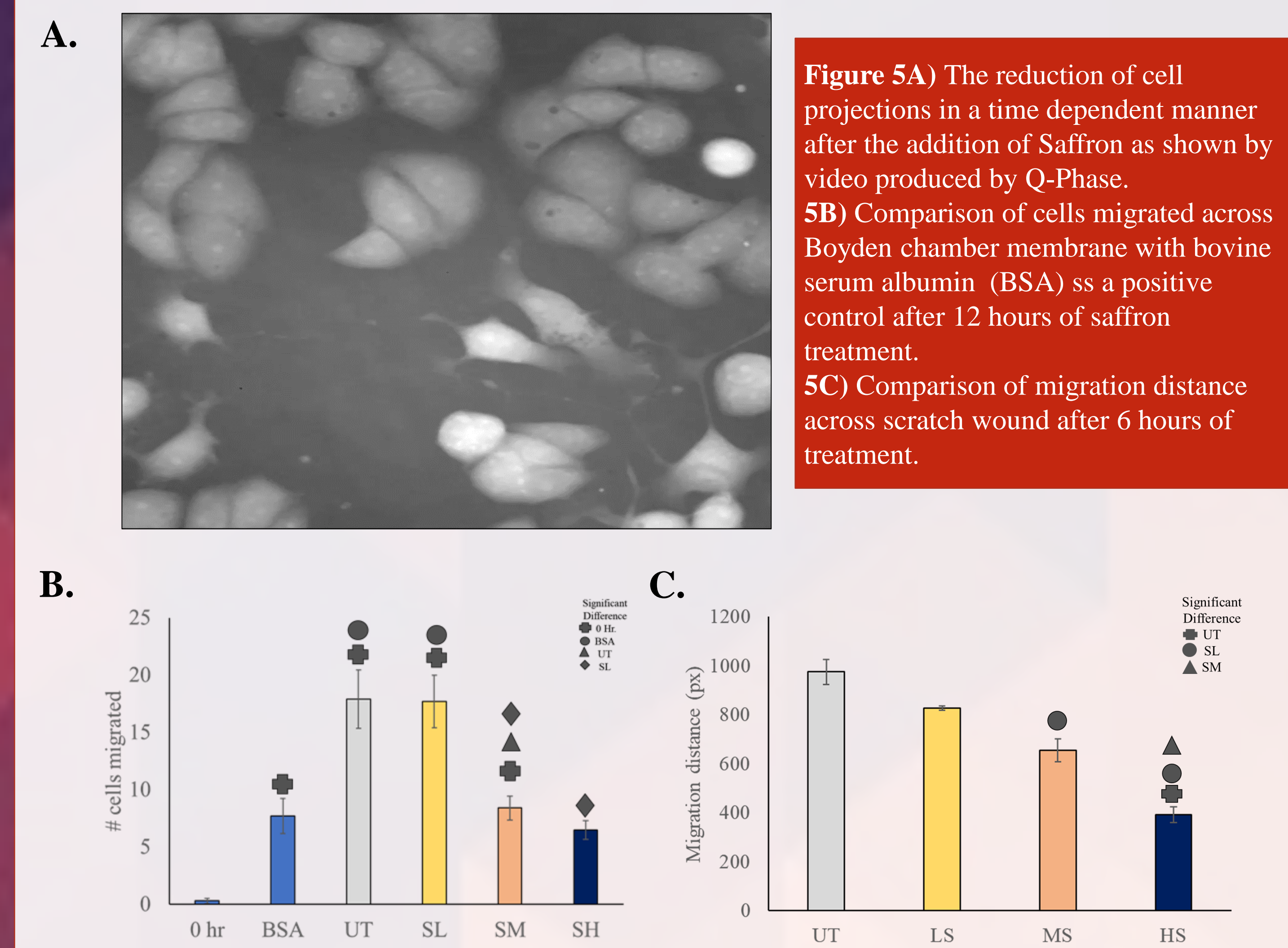
## Increasing saffron concentration causes a decrease in breast cancer cell invasion potential



**Figure 4A)** Morphological comparison between control versus saffron treated MDA-MB-468 breast cancer cells at 0 and 12 - hour time periods. White arrows mark cell projections.

**4B)** Average distance traveled by cells over a 12-hour time period, as calculated by Q-Phase Analysis. Cells were split into three groups based on movement: Non-Motile (10-35μm), Low-Motile (35-150μm), and High-Motile (150-550μm).

## Increasing saffron results in a decrease in cell motility and invasion potential



**Figure 5A)** The reduction of cell projections in a time dependent manner after the addition of Saffron as shown by video produced by Q-Phase. **5B)** Comparison of cells migrated across Boyden chamber membrane with bovine serum albumin (BSA) as a positive control after 12 hours of saffron treatment. **5C)** Comparison of migration distance across scratch wound after 6 hours of treatment.

## CONCLUSIONS

- Increasing concentrations of saffron cause a decrease in cell motility
- Cell viability decreases as saffron concentration increases.
- Cell invasion potential decreases as saffron concentrations increase.
- Saffron causes a decrease in tumorigenicity.

## FUTURE DIRECTIONS

- Analysis of saffron's effectiveness against motility, cell viability, cell invasion potential, and tumorigenicity for increased duration of time.
- Further exploration of saffron as an alternative therapy for breast cancer carcinoma in an animal model.

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