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Synthesis of Novel Aromatic Quinols for Colon and Renal Cancers
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Introduction
- Colon Cancer
  - The third most common cancer in the USA
  - More than 1 million Americans diagnosed annually
- Renal Cancer
  - Approximately 58,000 people diagnosed in USA annually
  - Seventh most common cancer and tenth most common cause of cancer-related death in men
- Risk Factors
  - Smoking
  - Gender, race, and age
  - Nutrition and weight
  - Hypertension
  - Overuse of certain medications

Application
- Aromatic quinols have demonstrated in vitro antitumor activity
  - Abnormal tyrosine protein kinase (PTKs) cause many human cancers
  - Aromatic quinols shown to be PTK inhibitors
  - They have longer half lives
  - Rapid bioactivity
- Grignard Reaction
  - The addition of an organomagnesium halide to a ketone or aldehyde to form a tertiary or secondary alcohol
- Examples of Aromatic Quinols

Proposed Mechanism

FT-IR Spectroscopy

Suggested Mechanism

Conclusion
- FT-IR, 1^H, and 13C spectroscopic data indicate that the synthesized molecule didn’t match the desired product
- The suggested mechanism is consistent with the data from spectroscopy and reported references
- Formation of the unexpected product may be due to the resulting thermodynamic stability of the aromatic α-electron system over the diene product

Future Work
- Future research should incorporate various protecting groups, such as cyclic ketals or thio ketals, to avoid the directing effects of methoxy substituents which are known to result in syntheses of unexpected products.

References

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