

Slide 1

**Cancer Treatment - Recent Advances and Current Limitations**  
**肿瘤治疗的最新进展及现有局限**

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Slide 2

**Overview**

- Review common cancer treatment modalities
- Introduce recent advances in the development of new cancer therapies
- Discuss limitations and major side effects of current cancer treatment

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Slide 3

**Cancer Treatment**

- Surgery 手术切除
- Chemotherapy 化学疗法
- Radiation therapy 放射线疗法
- Hormonal therapy 抗激素疗法
- Targeted therapy 靶向疗法
- Immunotherapy 免疫疗法
- Investigational therapies 实验性疗法

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Slide 4

### Surgery 手术切除

- Best chance for cure
- Not enough if cancer has spread
- Long term sequelae – scar tissue, dysfunction



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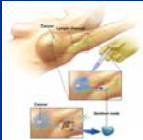
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Slide 5

### Surgery - Advance

- Minimally invasive
  - ◆ Thorascopic
  - ◆ Laparoscopic
- Function preserving
  - ◆ Nerve sparing
  - ◆ Sphincter sparing
  - ◆ Lumpectomy/sentinel node bx



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Slide 6

### Chemotherapy 化疗

- Effective for cancer that has spread
- Unlikely to cure
- Development of resistance
- Many side effects – nausea, infection, neuropathy, fatigue



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Slide 7

### Chemotherapy - Advance

- Better efficacy with drug combinations
- Less toxic agents
- More convenient drug delivery – oral form, pump, liposomal formulation



Different chemotherapy drugs are effective during different phases of the cycle of cell growth and division.

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Slide 8

### Radiation Therapy 放疗

- Local treatment
- Some cancers very sensitive (e.g. testicular)
- Limited maximal dose
- Collateral damage to normal tissues (pneumonitis, xerostomia)
- Some cancers resistant



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Slide 9

### Radiation Therapy - Advance

- 3D Conformal RT
- Intensity Modulated RT
- Use of radioprotectant
- Use of radiosensitizer



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Slide 10

### Hormonal Therapy 抗激素疗法

- Gentle
- Long term use
- Only for hormone sensitive cancers
- Side effects (sexual, bone)



The diagram illustrates the mechanism of hormonal therapy. It shows a cell with a nucleus containing DNA. A hormone (represented by a red dot) binds to a receptor (represented by a blue shape) on the cell membrane. This binding triggers a signal transduction pathway (represented by a red line) that leads to the activation of a transcription factor (represented by a red shape). The transcription factor then enters the nucleus and binds to the DNA, initiating the transcription of a gene (represented by a red line).

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Slide 11

### Hormonal Therapy - Advance

- More drugs available
- Targeting different checkpoints



The diagram illustrates the mechanism of advanced hormonal therapy. It shows a cell with a nucleus containing DNA. A hormone (represented by a red dot) binds to a receptor (represented by a blue shape) on the cell membrane. This binding triggers a signal transduction pathway (represented by a red line) that leads to the activation of a transcription factor (represented by a red shape). The transcription factor then enters the nucleus and binds to the DNA, initiating the transcription of a gene (represented by a red line). The diagram also shows a feedback loop where the hormone binds to a receptor on the cell membrane, which then triggers a signal transduction pathway that leads to the activation of a transcription factor, which then enters the nucleus and binds to the DNA, initiating the transcription of a gene.

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Slide 12

### Targeted therapy 靶向疗法

- Much less side effects
- Can have dramatic results on previously difficult to treat cancers
- Expensive
- Doesn't work on everyone



The diagram illustrates the mechanism of targeted therapy. It shows a cell with a nucleus containing DNA. A drug (represented by a red dot) binds to a receptor (represented by a blue shape) on the cell membrane. This binding triggers a signal transduction pathway (represented by a red line) that leads to the activation of a transcription factor (represented by a red shape). The transcription factor then enters the nucleus and binds to the DNA, initiating the transcription of a gene (represented by a red line).

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Slide 13

### Targeted Therapy - Advance

- Many new drugs in the pipeline
- New targets
- Precise targeting based on DNA fingerprinting



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Slide 14

### Immunotherapy 免疫療法

- Specificity
- Improved other treatment's efficacy
- Toxicity
- Response varies among individuals



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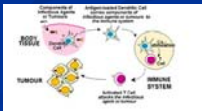
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Slide 15

### Immunotherapy - Advance

- Anti-receptor antibody
- Anti-angiogenesis antibody
- Cytokine treatment
- Cancer vaccine



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Slide 16

**Investigational therapies 实验性疗法**

- Clinical Trials
  - ◆ To test safety and efficacy of a new therapy in humans



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Slide 17

**Investigational Treatment**

- Better efficacy
- Fewer side effects
- Overcome resistance
- Break new ground



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Slide 18



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Slide 19



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Slide 20

A screenshot of the U.S. News Best Hospitals 2005 website. The page is titled "Best Hospitals 2005" and has a sub-header "CANCER". Below the header, there is a table listing the top cancer hospitals. A yellow arrow points to the first row of the table, which is for Memorial Sloan-Kettering Cancer Center. The table has columns for Rank, U.S. News Score, Population, Mortality, Discharges, Normal patient, Key health, Patient/ community, and Hospital/ palliative care.

Rank	U.S. News Score	Population	Mortality	Discharges	Normal patient	Key health	Patient/ community	Hospital/ palliative care
1	100.0	70.6	0.77	5,621	1.6	Yes	6	Yes H, P
2	99.9	69.9	0.76	5,635	1.9	Yes	5	Yes P
3	99.9	69.9	0.76	5,635	1.9	Yes	5	Yes P
4	99.9	69.9	0.76	5,635	1.9	Yes	5	Yes P
5	99.9	69.9	0.76	5,635	1.9	Yes	5	Yes P

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Slide 21

**Integrative Oncology at MSKCC**

- Combines the best of complementary therapies and mainstream cancer care
- Research new therapies derived from TCM

A collage of images illustrating integrative oncology. It includes a person in a yoga pose, a person in a chair, a person in a car, a person in a car, a person in a car, a person in a car, a person in a car, a person in a car, a person in a car, a person in a car.

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Slide 22



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Slide 23

**Role of TCM in Cancer Treatment**  
中医辅助肿瘤治疗

- Improve efficacy
- Reduce side effects
- Aid recovery
- Prevent disease
- Promote well-being

广阔天地



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