

**Of Hearts and Hypertension: Blazing Genetic Trails**  
**1998 Holiday Lectures on Science**  
**Chapter List**

Lecture One

Brave Heart: Circle of Life

Christine E. Seidman, M.D.

1. Introduction to Lecture One
2. Normal heart structure and function
3. The circulatory system and hemodynamics
4. Heart valves and heart sounds
5. The mechanism of heart contraction
6. Natural and artificial pacemakers
7. Coronary arteries and atherosclerosis
8. Echocardiogram demonstration
9. Question-and-answer session

Lecture Two

Telltale Genes: Charting Human Disease

Richard P. Lifton, M.D., Ph.D.

1. Introduction to Lecture Two
2. How genetics relates to disease
3. Mendel, Morgan, and the dawn of genetics
4. Gene linkage, chromosomes, and recombination
5. Discovery of DNA as the genetic material
6. Dominant and recessive inherited diseases
7. Using DNA markers to map disease genes
8. A summary of some identified disease genes
9. Question-and-answer session

## Lecture Three

### Heartbreak: Of Mutations and Maladies

Christine E. Seidman, M.D.

1. Introduction to Lecture Three
2. Definition and examples of cardiomyopathy
3. A case history of hypertrophic cardiomyopathy
4. Identifying the genes involved in the disease
5. Using genetics to diagnose cardiomyopathy
6. Detecting the disease when no symptoms are present
7. Engineering a mouse with hypertrophic cardiomyopathy
8. Question-and-answer session

## Lecture Four

### The Kidney's Tale: Of Salt and Hypertension

Richard P. Lifton, M.D., Ph.D.

1. Introduction to Lecture Four
2. Definition of blood pressure
3. The kidney's role in hypertension
4. Genetics of a family with severe hypertension
5. Liddle syndrome and increased reabsorption of salt
6. Other genetic disorders in the sodium regulation pathway
7. Information about the sodium pathway may lead to treatments
8. Question-and-answer session