**Name: Period:**

**KARYOTYPING LAB**

 *A karyotype is an organized profile of a person's chromosomes. In a karyotype, chromosomes are arranged and numbered by size, from largest to smallest. This arrangement helps scientists quickly identify chromosomal alterations that may result in a genetic disorder. To make a karyotype, scientists take a picture of someone's chromosomes, cut them out and match them up using size, banding pattern and centromere position as guides. Today you will have the job as a cytogenticist, a person who studies karyotypes. You will be given 8 photos of different karyotypes of fetuses of different patients who are expecting a child. It will be your job to gather information from the karyotypes and fill out your report sheet so that you can give your report back to their primary physicians for further discussions.*

|  |  |  |  |
| --- | --- | --- | --- |
| **Patient Karyotype #** | **Sex of Patient** | **Where is the chromosomal abnormality?** | **Name of Disorder Patient Will Have** |
| **Patient # 1** |  |  |  |
| **Patient # 2** |  |  |  |
| **Patient # 3** |  |  |  |
| **Patient # 4** |  |  |  |
| **Patient # 5** |  |  |  |
| **Patient # 6** |  |  |  |
| **Patient # 7** |  |  |  |
| **Patient # 8** |  |  |  |

|  |  |  |
| --- | --- | --- |
| **CHROMOSOMAL ABNORMALITY** | **NAME OF GENETIC DISEASE** | **SYMPTOMS OF GENETIC DISEASE** |
| XYY – An Extra Y Chromosome | **Jacob’s Syndrome** | * No unusual abnormalities
* Behavior problems
* Increased height
* Large hands and feet
 |
| X – Missing a Number 23 Chromosome | **Turner Syndrome** | * Short stature (height)
* Failure of ovaries to develop
* Abnormal fingernails and toenails.
* Kidney and urinary tract disorders.
* Hearing problems.
* Drooping eyelids.
* Wandering eyes.
 |
| Tip of Number 5 Chromosome is Deleted. | **Cri-Du-Chat** | * Cry is high-pitched so it sounds like a cat.
* Low-set or abnormally shaped ears.
* Mental retardation
* Webbed fingers and toes.
* Small head
* Wide-set eyes
 |
| XXY – An Extra X Chromosome | **Klinefelter’s Syndrome** | * Very little body hair.
* Underdeveloped muscles
* Enlarged breasts
* Reduced speech ability
* Reduced problem-solving skills.
* Trouble with controlling impulses
 |
| Trisomy 13 | **Patau’s Syndrome** | * Extra fingers and toes
* Deformed, rocker-bottom feet.
* Severe mental deficiency due to underdeveloped brain.
* Facial deformation such as cleft palate.
* Heart and Kidney defects.
 |
| Trisomy 18 | **Edward’s Syndrome** | * Mental retardation
* Small head, very wide-set eyes, small lower jaw.
* Small eyes.
* Bones are severely retarded in their growth (they grow slowly)
* Urinary tract, digestive tract, and genitals are malformed.
 |
| Trisomy 21 | **Down Syndrome** | * Flat face with an upward slant to the eye, short neck, and abnormally shaped ears.
* Hearing problems.
* Heart disease
* Intestinal problems
* Thyroid disfunctions
* Skeletal problems
* Dementia
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