# Clones

A clone is a sophont genetically identical to a single or donor parent sophont. It has the same genes as its parent. Clones fill important social, economic, and medical functions in society.

The concept of clone embodies an organic reproduction or recreation of a single individual. The genes of the original are used to create one or more duplicates.

**CLONE TYPES**

There are five general types of clones:

**Natural.** Clones occurring naturally.

**Offspring.** Clones produced as children.

**Relict.** Clones intended to replaced dead individuals.

**Guest.** Clones produced to provide cheap labor.

**Meds.** Clones produced to provide medical parts.

**Natural Clones**

occur without the intervention of technology. Identical twins are natural clones (of each other rather than of a parent). The children of Solitaires (sophonts with only one gender) are natural clones. Natural clones are birthed as children and proceed naturally through all life stages.

For example, citizens Sean and Filis Netzel meet, fall in love, and marry. After a suitable period, they have their first child. Actually, their first child turns out to be two: identical twins. Identical twins are natural clones of each other.

For example, Knuma is a Dantionite from Thestrouroura (Tickstap 7 [ A3 V ] ). This species has a single gender (=Solitaire). Knuma has a litter of four pups, each genetically identical to the parent. They are natural (and offspring) clones.

Natural Clones have natural organic bodies, natural brains, and naturally formed personalities.

**Playing Natural Clones.** Two or more players may decide to play identical sibs: twins, triplets, litter mates. A single set of characteristics is created for the natural clones, and then each player administers his individual character though the character generation process.

**Offspring Clones**

are deliberately created clones intended as children of individuals. They are typically created for an individual driven by a need to have offspring, but who does not care to involve other parents in the creation process. For example, a Neuter does not normally participate in child creation; it could create a child through cloning. The offspring of the Solitaire gender are natural clones (and offspring clones).

Offspring clones are birthed as children and then proceed through all normal life stages.

For example, merchant captain Eneri Dinsha travels the starlanes and has never settled down; co-incidentally he has never found a suitable mate. As he approaches Life Stage 5, he feels, and acts on, his instincts to have a family. He visits a doctor's office on Regina and makes the necessary arrangements. Nine months later, he returns to Regina and takes delivery of his new son. The first few years are both harrowing and exciting, but the ship's crew lends its help, and soon Eneri's son Ank is a junior member of the crew, helping with cargo handling, food preparation, and eventually helping on the bridge. Ank Dinsha is an offspring clone.

For example, a Neuter in the gender structure Female-Male-Neuter does not normally participate in reproduction and child creation; it could create a child through cloning.

Offspring Clones have natural organic bodies, natural brains, and naturally formed personalities. Offspring clones progress normally through childhood.

Offspring clones are always the same gender as the parent.

**Playing Offspring Clones.** A player whose character has reached Life Stage 9 may decide to continue adventuring as an offspring clone of the original character.

**Relicts**

are deliberately created clones intended to replace an existing individual (typically one who is dead or incapacitated). The pattern provides genetic material samples and a personality, memory, and skill recording.

Relicts are not created until the pattern has died or disappeared. When a pattern dies, a relict is force-grown to Life Stage 3 and implanted with the pattern's recorded personality (including memories and skills).

A relict preserves memories and is an effective duplicate or replacement for the pattern.

For example, Star Marine Captain Sir Mountain Dressler III is employed in a dangerous profession and he quite responsibly has bought life insurance. Before what came to be known as the Retreat from Jewell, he spoke with an agent and made the appropriate arrangements. Dressler acquitted himself heroically, and was awarded the MCG. In the last days of the campaign, Dressler held off the enemy, protecting his Infantry Company as they boarded the retrieval cutters. Dashing for the loading doors, he was cut down in enemy plasma gun crossfire.

His unit, when it returned to base, notified his insurance company, which used its cell samples to force-grow a new body and then implant into it his personality and memories. About a year later, he returned to duty wearing his newly won MCUF, his Battle Ribbon (and a Wound Badge) on his dress uniform (but with no memories of the entire campaign).

Relicts have force-grown organic bodies, cloned brains, and implanted personalities (a recording of the original personality).

**Playing Relicts.** Life Insurance activates a Relict when a

verified report of death or disappearance is made to the company. The activated Relict has the memories and skills of the original and becomes owner of the original's property.

**Guests** (as in Guest Workers)

are deliberately created clones intended as cheap laborers. A suitable pattern provides genetic material samples and a personality and skill recording.

Guests are force-grown from genetic material samples and implanted with an edited recorded personality (typically personality and skills but not memories). A guest is a skilled duplicate of the pattern, lacking only the memories of the original.

For example, during the Second Frontier War, Zhodani and Imperial forces repeatedly held, lost, and retook strategic positions on Arden. Thousands of soldiers on both sides were killed. Local trading company Lant Partners saw an opportunity for profit in midst of all this destruction and collected cell samples and brainscans from several dozen of the dead (some were actually not quite dead when the samples and scans were taken). The result was a bonanza: dead soldiers became guest security guards and bodyguards; dead technicians became guest factory workers; a dead doctor became a series of sorely needed medical staffers.

For example, Antilles Rahban grew up on Boughene, the child of prospectors in the copper-rich Swalian Mountains; he was the operator of a small copper mine for more than 40 years. Both strong and smart, he was good at what he did, and he enjoyed his work. When Naasirka opened a much larger mine, it needed more skilled workers than the planet could provide, and they struck a deal with Rahban: in return for his cell samples and brainscan, they provided him with a new cloned body and bought out his mine for enough to support him reasonably well for the rest of his life.

Naasirka's Rahban Mine (they named it after him) is staffed by a workforce of strong smart Rahban clones, each implanted with the proper skills and a personality which enjoys its work. Naasirka's cost-benefit analysis was confirmed: it was cheaper to create a clone workforce than to recruit, transport, and train hundreds of offworlders.

Guests have force-grown organic bodies, cloned brains, and edited implanted personalities (an edited recording of the original personality). Guests are typically sterilized when created.

**Playing Guests.** A character may be a Guest. Although memories are supposed to be edited out of the personality, the process sometimes fails.

**Meds** (as in Medical Clones)

are clones deliberately created as reserves of medical replacement parts. When a pattern requires medical repair parts, a med is force-grown to Life Stage 3 and then used to provide replacement parts.

For example, after a terrible groundcar accident, AcLama Stigh and Destiny Arrcher both lay in autodocs with extensive injuries. AcLama was 62 years old: the doctors took tissue samples and force grew a completely new clone body over about 18 weeks. When it was ripe, they implanted his brainscan into the new body and allowed the old one to expire. Destiny is 24 and her injuries are confined to the left leg. The leg is removed and replaced with a mechanical. Once the clone body is ripe, her leg is replaced with a clone leg and the rest of the clone body is destroyed.

**Playing Meds.** Meds are rarely played. The occasional med may escape its force-growth chamber.

**THE DETAILS OF CLONES**

Clones may be characters.

**Genetic Duplication**

It is possible that a clone is not an exact duplicate of an existing sophont (the pattern) since only the genetics are duplicated. Cloning duplicates the genetic values of the pattern and dice create the remainder of each characteristic.

For each characteristic, the remainder (the other dice) are rolled normally. Non-genetic characteristics have a value of zero (for example, C5=Education).

For example, the original Eneri Dinsha 777777 has each characteristic created with 2D. For each characteristic, the first D was 3 and the second D was 4. Eneri's genetic UPP is 3333XX.

When creating nine clones of Eneri, the non-genetic D is rolled individually. Implanting Eneri's personality provides the Edu and Soc.

**THE NINE CLONES OF ENERI DINSHA**

| Who? | Dinsha = 777777<br>Genetic=3333XX | |
|---|---|---|
| Clone01 | 444777 | < minimum |
| Clone02 | 455777 | |
| Clone03 | 484777 | |
| Clone04 | 599777 | |
| Clone05 | 566777 | |
| Clone06 | 685777 | |
| Clone07 | 757777 | |
| Clone08 | 884777 | |
| Clone08 | 899777 | |
| Clone09 | 999777 | <maximum |

Seven randomly generated clones of Eneri Dinsha, plus the minimum and maximum possible UPPs.

Each of the clones "thinks" he is Eneri Dinsha. Some of them will remember different Strength or Dexterity and soon realize that he is not the original. Others may persist in believing he is the original.

**Clone Intelligence.** A clone possesses its native (genetic) Intelligence. The Forced-Growth process does nothing to increase that intelligence so a clone freshly made has only genetic intelligence.

**Personality Implants.** Once fully grown, a clone is implanted with its personality which provides it C4 C5 and C6.

**Natural Life Stages.** Natural and Offspring Clones proceed through the Life Stages in ordinary time. They generate C5 normally. They generate C6 according to the specific non-genetic inheritance rules.

**Force Growth.** It is possible to speed up the growth of organics. A Metabolic Chamber (the standard device for creating clones) can accelerate growth to about one year per week.

**Natural Gestation Periods.** The human gestation period is nine months. If a gestation period is necessary for a non-human, calculate it using sophont size as a percentage of nine months. For example, a Size 50 sophont has a pregnancy of (50% of 9 months ) = 4.5 months.

Some parents prefer that the pregnancy proceed in a laboratory, and some prefer it be forced-growth.

**Natural Or Forced-Growth?**

Natural Clones and Offspring Clones mature naturally. They pass through each Life Stage in real time.

Relicts and Guests would be relatively useless concepts if they could not be rapidly made available.

Clones can be force-grown in a Metabolic Chamber (at one year per week) to Life Stage 3.

A Force-Grown clone body has no developed personality. Without a personality implantation, it has C5=0 and C6=0.

**Aging**

Cloning accelerates the aging pattern of the individual.

Physical aging begins at Life Stage 4 (one stage earlier than the pattern). Age is the biological age of the newly produced body. Physical aging applies to characteristics C1 C2 C3.

Mental aging begins at Life Stage 8 (also one stage earlier than the pattern). Mental aging applies to Intelligence.

Natural and offspring clones are not subject to accelerated clone aging.

**Reproduction**

Natural and Offspring Clones and Relicts reproduce normally under the same circumstances as their pattern.

Guests are typically sterilized during the force-growth process. However, their innate genetic material allows them to be cloned.

**Injuries and Healing**

Clones can be injured in the same way as their pattern sophonts. They heal in the same way as well.

**Identifying Marks and Controls**

The clone creation process itself imposes no special identifying markings. Natural and Offspring clones are almost never given unique or identifying markings.

**Relict Markings.** A Relict may be given an unobtrusive marking for identification purposes (typically a tattoo); obvious markings would frustrate the purpose of a Relict.

**Guest Markings.** A Guest may be given markings for identification purposes. Guest markings are usually visually obvious (large tattoos).

**Med Markings.** A Med is typically unmarked.

**THE TECHNOLOGY OF CLONING**

| | TL | |
|---|---|---|
| High Tech | 10 | |
| | 11 | |
| | 12 | Personality Recording and Editing. |
| VhighTech | 13 | Cloning. Forced Growth. Wafer Technology. |
| | 14 | Geneering. |
| | 15 | |
| Xhigh Tech | 16 | Artificial Intelligence. |
| | 17 | |
| | 18 | |

## CREATING CLONES

A clone is a duplicate of an existing sophont (the pattern). Cloning duplicates the genetic values of the pattern and dice create the remainder of each characteristic.

For example, for a human pattern the Genetic Characteristics and their values are known (or can be determined). These values form the base for clone creation.

For each characteristic, the remainder (the other dice) are rolled normally. Non-genetic characteristics have a value of zero (for example, C5=Education or C5=Training).

**Natural Life Stages.** Natural and Offspring Clones proceed through the Life Stages in ordinary time. They generate C5 normally. They generate C6 according to the specific non-genetic inheritance rules.

**Natural Variation.** A clone is not identical to its pattern. The natural variation added to the gene means that a final characteristic can be much different from the original's characteristic.

## CREATING A CLONE

A human (or sophont) clone can be created from available information.

**Required Information.** SCC for humans (or sophont). UPP, skills, and knowledges for a specific human (or sophont). Genetic Profile for a specific human (or sophont).

### Natural Clone

C1= DNA + 1D (or as required for the sophont).
C2= DNA + 1D (or as required for the sophont).
C3= DNA + 1D (or as required for the sophont).
C4= DNA + 1D (or as required for the sophont).
C5= 2D (or as required for the sophont).
C6= Soc = Parent. Cha or Cas generated per Chargen.
Gender= random.
Personality= new with this person.

### Offspring Clone

C1= DNA + 1D (or as required for the sophont).
C2= DNA + 1D (or as required for the sophont).
C3= DNA + 1D (or as required for the sophont).
C4= DNA + 1D (or as required for the sophont).
C5= 2D (or as required for the sophont).
C6= Soc = Parent. Cha or Cas generated per Chargen.
Gender= random.
Personality= new with this person.

### Relict

C1= DNA + 1D (or as required for the sophont).
C2= DNA + 1D (or as required for the sophont).
C3= DNA + 1D (or as required for the sophont).
C4= implanted from original.
C5= implanted from original.
C6= implanted from original.
Gender= is the same as the original.
Personality= implanted recording from original = C4 C5 C6.

The Relict has the same personality C4 C5 C6 as the original, including skills and knowledges. It has the same memories as the original, but only to the date of the personality recording.

If this relict were somehow released before being implanted with the original's personality, it would have C4 Int = Genetic C4. C5 Edu =0. C6 Soc =0.

### Guest

C1= DNA + 1D (or as required for the sophont).
C2= DNA + 1D (or as required for the sophont).
C3= DNA + 1D (or as required for the sophont).
C4= edited implant from original.
C5= edited implant from original.
C6= edited implant from original.
Gender= same as the original.

The personality for the Guest is edited. It usually has the same personality C4 C5 C6 as the original, including skills and knowledges. Typically, memories have been removed.

### Med Clone

C1= DNA + 1D (or as required for the sophont).
C2= DNA + 1D (or as required for the sophont).
C3= DNA + 1D (or as required for the sophont).
C4= 0
C5= 0
C6= 0
Gender= same as the original.
Personality= none.

# Chimeras

A chimera is a hybrid of two or more distinct species. Alternatively, a chimera is a sophont who has been significantly altered through the inclusion of genetic material from one or more other species (not necessarily sophonts).

A Chimera (pronounced ky-MEER-a, for those with Edu 6 or less: CHIM-er-a) is the result of significant or substantial genetic mixing; it may be natural or geneered.

A **Natural Chimera** is the result of interspecies fertility. Interspecies fertility creates offspring which share some of the details of each species, including senses, body structure, and other elements. In the majority of cases, such offspring is non-viable. When it is viable, it is often sterile. When viable and non-sterile, it breeds true with other viable, non-sterile individuals.

For example, members of two distinct sophont species are inter-fertile (and can create children) if they both have the same Genetic Profile (human = SDEIES). Such activity is rare and may need to overcome specific interface obstacles (perhaps through in vitro fertilization).

Natural Chimeras have natural organic bodies, natural brains, and naturally formed personalities. They function in all respects as a natural sophont.

Natural Chimerism may be used to explain why a sophont has specific abilities or characteristics.

A **Geneered Chimera** is the deliberate result of genetic engineering to combine aspects of two or more distinct species. Genetic Engineering can select genetic features from existing species (not necessarily both sophonts) and combine them to create a new organism.

For example, a colonial development organization intent on exploiting the natural resources of a world could genetically engineer an existing sophont which breathes Air-3 to incorporate from other sophonts such capabilities as high Strength, high Endurance, and Vision in IR bands.

**THE DETAILS OF CHIMERAS**

Minor or minimal geneering is a natural part of any technological society. Genetic editing to remove minor disabilities or for minor cosmetic enhancements is commonplace. However, when significant genetic material from other organisms is grafted onto a being, the result is a chimera.

Chimeras can be cloned.

Chimeras can be characters.

**Viability.** It is possible that the process to create a Chimera will produce a non-viable result. For example, the random selection of head and torso between the two precursors of the chimera may result in no brain. Such efforts are failures.

**Aging.** Chimeras age according to the hybrid Life Stages structure on the Sophont Creation Card

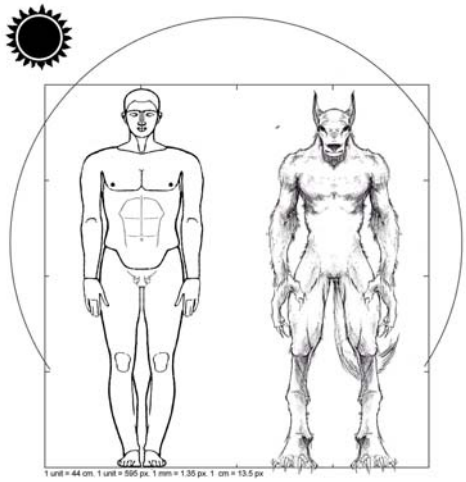
**Reproduction.** Chimeras reproduce normally under the same circumstances as their pattern.

**Injuries and Healing.** Chimeras can be injured in the same way as their pattern sophont. They also heal in the same way.

**Identifying Marks and Controls.** The chimera creation process itself imposes no special identifying markings or control codes.

**PLAYING CHIMERAS**

A Chimera can be played like any other sophont. The details of its location and origins are created as necessary.



**ARE VARGR CHIMERAS?**

It is generally accepted that the Vargr are an intelligent Major Race created by the Ancients through genetic manipulation of Terran carnivore/chasers at about the same time humans were scattered from Terra to the stars. Over time, researchers have confirmed that Vargr are genetically derived from family Canidae and almost certainly genus Canis (that is, wolves or proto-dogs).

**The Unanswered Question.** With geneering accepted as the origins for the Vargr, the question arises about precisely what that genetic manipulation was: Did it manipulate existing genetic structure to favor an upright stance and opposable thumbs? Did the Ancients so completely understand genetics and molecular biology that they simply wrote or created new genes to insert into Earth's proto-dogs? Or, did those Ancient genetic engineers do what modern geneers do? Did they take the nearest available compatible genes for hands, and upright stance, and increased intelligence?

**Are Vargr Human-Wolf chimeras?**

**CHIMERA ALLOCATION CHECKLIST**

Use this checklist to control creation of Natural or Geneered Chimeras. The processes are nearly identical; differences (only) for Natural Chimeras are shown. Create a blank Sophont Creation Card for the Chimera being generated.

| | **Geneered** | **Natural** |
|---|---|---|
| 1. | Select two Sophont Creation Cards | |
| | A. with identical NA. | A. with identical Genetic Profile and Nucleic Acid. |
| | B. Identify them as Pattern1 and Pattern2. | |
| 2. | Allocate Basic Information from the SCC. | |
| | A. Niche and Subniche. Enter <Geneered Chimera>. | A. Niche and Subniche. Enter < Chimera>. |
| | B. Native Environment / Locomotion. Select. | B. Native Environment / Locomotion. Select. |
| | C. Breathes. Select. | C. Breathes. Randomly select. |
| | D. Genders. Select. | D. Genders. Randomly select. |
| | E. Castes. If present, Select. | E. Castes. If present, randomly select. |
| | F. Racial Scent. | |
| | Combine the Pattern1 PON and Pattern2 PON. | |
| 3. | Characteristics and Characteristic Dice. | |
| | Select from the available entries. | Randomly select from the available entries. |
| 4. | Senses. | |
| | Select from available entries (including blanks). | Randomly select available entries (including blanks). |
| 5. | Body Structure. Select from the available entries. | 5. Body Structure. Randomly select from available entries. |
| | Symmetry | |
| | Head | |
| | Torso | |
| | Limbgroups 1-2-3-4. | |
| | Tail. | |
| | Skeleton. | |
| | Skin. | |
| | Body Fluids. | |
| 6. | Life Stages. Select from the available patterns. | 6. Life Stages. Randomly select from available patterns. |
| | Recalculate Life Expectancy. | |
| 7. | Card Back. | |
| | Insert information for Gender Structure | |
| | Insert information for Caste Structure. | |
| 8. | Analyze for Viability. | 8. Analyze for Viability. Discard non-viable Chimeras. |

**Identical Genetic Profile=** All Genetic components of the Profile are the same. For example, SDEIES and SDEITC are identical because C5 Education and C6 Social Standing are not Genetic and C5 Training and C6 Charisma are not Genetic.

**The Technology Of Geneered Chimeras.** Geneering is practical at TL 14.

**THE NEW SOPHONT CREATION CARD**

The final information on the Sophont Creation Card is filed. Proper identifying information should be added as necessary.

# Synthetics

A synthetic is an organic- or biologically-based artificial being created or manufactured according to a master template or blueprint. **Synthetics** are blends of biological and non-biological processes (the proportion may vary). For example, a synthetic may use biological processes to produce energy but have a mechanical pump to circulate blood. Synthetics are distinguishable from clones (duplicates created from existing genetic templates), chimeras (the result of genetic engineering), and robots (truly mechanical or non-organic beings).

**Just How Synthetic Is Synthetic?**

Many organic sophonts have mechanical or non-organic components (replaced teeth, replaced joints or bones, prostheses, a heart pacemaker, an insulin pump). Many robots have organic-based components (smell processors, organic brains). The generally accepted guidelines are:

A being (natural, clone, or chimera) remains organic despite the replacement of body components with non-organic parts if the majority of functions are organic.

A robot remains robotic with up to one-third organic components. The most common organic component for a robot is an organic brain.

A synthetic or semi-organic lies between organic and robotic.

While sophontoids appear externally similar to the sophont on which they are patterned, they are internally and macroscopically dissimilar. Internal process, organs, and fluids are all independently designed and created using alternative methodologies. In addition, a semi-organic is incapable of reproduction.

**TERMINOLOGY**

Several terms refer to synthetic beings:

**Synthetic.** An artificial being blending organic (living) and mechanical (non-living) elements. Synthetic refers to the general class of created beings between natural and robotic.

**Android.** Specifically, a synthetic human. Technically, android is a synthetic male human; a synthetic female human is a gynoid.

**Sophontoid.** A synthetic sophont. Sophontoid is an expansion of the word android to encompass all sophonts rather than just humans.

**Semi-Organic.** A combination of organic and mechanical components. Literally, half-organic. A synonym of synthetic when applied to beings. Semi-organic refers to the nature of components or devices which blend organic and non-organic elements. A semi-organic brain adds electronics to an organic brain to enhance its capabilities.

**TYPES OF SYNTHETICS**

There are three general types of synthetics: Faux, Organic Devices, and Sophontoids.

**Faux (Imitation Animals)**

A **Faux** (one is pronounced Foe; several together is Foes; they are spelled the same either way) (characters with C5=6 or less say **Fox**) is an imitation animal; a semi-organic simulacrum (plural = simulacra) of a non-intelligent being.

For example, a synthetic guard dog can be produced with greater survivability than a biological dog; a synthetic transport beast may be superior to a horse or mule.

Imitation animals have some organic and some mechanical components. They are directed by semi-organic brains and implanted personalities.

**Using Imitation Animals.** Imitation animals are encountered in the course of ordinary events.

**Organic Devices**

An **Organic Device** is a synthetic object which performs some activity using biological processes.

For example, a semi-organic voice amplifier may have superior qualities when compared to an electronic amplifier.

Other examples are: small room cleaners, intruder sensors, a water filter/purifier, and lawn trimmers.

Organic devices have some organic and some mechanical components. They are directed by semi-organic brains and implanted (rudimentary) personalities.

**Encountering Organic Devices.** Organic Devices are commonly encountered in the course of ordinary events; they may be commonplace, and often ignored.

**Sophontoids**

A **Sophontoid** is a semi-organic imitation of a sophont. It is an artificial sophont built for specific purposes (for example, cheap labor under special or extreme conditions).

For example, a company may endeavor to create a low-cost imitation human. Based on an existing human, the android (the term for a human sophontoid) has the general human body structure, but makes use of a mechanical pump to circulate body fluids. It is controlled by a circuitry-enhanced animal-derived brain.

Sophontoids have semi-organic bodies, semi-organic brains, and implanted personalities.

**Playing Sophontoids.** A sophontoid may be a character.

**HOW THEY BUILD SYNTHETICS**

Naasirka Regina (a synthetic manufacturer) sees a market need for a small semi-organic room cleaner.

They select a common mouse as the starting point and begin the process. The rudimentary personality of the mouse is recorded, the mouse is cloned several hundred times, and the personality is re-implanted. The mice are trained on basic tasks (obeying instructions, avoiding moving objects and people). These multiple personalities are them recorded, edited, and integrated to create a basic mouse personality with the best of the learned behaviors.

**The Semi-Organic Body.** A semi-organic body is designed and manufactured. It includes a self-healing outer skin, multiple retractable legs for stability, basic sensors to detect edges and prohibited areas, and a pouch to store dust and floor dirt.

An organic power system is designed to take nutrient from a fixture in the nest and to deposit waste in the pouch.

**The Semi-Organic Brain.** The mouse personality is implanted in the semi-organic brain. Because the personality is derived from the original of the cloned brain, the personality implant is permanent.

**The End Product.** The Naasirka-Regina NR1000 cleaning system is a system consisting of a floor level nest as home to one or more cleaners dedicated to keeping floors clean and shining. The cleaners stay out of sight whenever people are present; it is only when the room is empty that they come out and do their work. The cleaners collect dirt and dust in their internal pouches and empty it into a central receptacle in the nest. They sort larger objects (coins, small parts) from the pouch into an accessible Lost & Found bin. The cleaners live on a special nutrient fluid available only in the nest (refillable quarterly).

**Other Features and Restrictions.** The NR1000 has a useful life of about 10 years. The cleaners are available in a variety of colors, including licensed sports team themes.

Naasirka-Regina provides periodic upgrades to the implanted personalities (which are self-installing in the nest).

**THE TECHNOLOGY OF SYNTHETICS**

Effective Cloning and Forced Growth are foundations for the organic components of synthetic; these technologies cluster around TL-13. Mechanical and electronic components are available at earlier levels.

**THE DETAILS OF SEMI-ORGANICS**

The term semi-organic is generally used with Faux and with Organic Objects. Intelligent semi-organics are usually called sophontoids.

There is usually no purpose to non-sophontoids as characters; sophontoids, however, can be quite interesting.

**Production**

Semi-Organics are produced at a factory using a set of master plans or master drawings. The commonly used term for a semi-organic factory is **vat** (the concept that semi-organics are grown in a vat is inaccurate but widespread).

**Manufacture.** Semi-Organics are manufactured. When they leave the vat they are in final operable form, fully trained, and fully capable of fulfilling their intended functions.

**Reproduction.** Semi-Organics are incapable of reproduction.

**Cloning.** Because some components are non-biological, semi-organics cannot be easily cloned.

**Injuries and Healing**

Semi-Organics can be injured in the same way as other biological beings can.

Semi-Organics usually have an outer covering (skin) capable of healing. Organic internal organs can also heal; and they can be cloned for replacement. Non-organic components which are damaged require repair or replacement.

**THE DETAILS OF SOPHONTOIDS**

Sophontoids are produced at a factory using a set of master plans or master drawings. The commonly used term for a sophontoid factory is **vat**. The concept that sophontoids are actually grown in a vat is inaccurate but nonetheless widespread.

**Manufacture.** Sophontoids are manufactured. Various components are grown or fabricated, and the sophontoid comes to life with the installation of the semi-organic brain. They begin life in adult form, fully trained and capable of performing their intended duties.

Before leaving the factory, a sophontoid receives a basic education or training consisting of a total of _12_ skill levels (for batch sophontoids) or _18_ skills (for premium sophontoids) distributed across any number of skills and knowledges. Sophontoids which do not meet this level of quality or achievement are terminated as substandard.

A sophontoid has no memory of events prior to leaving the factory. Its first memory is of the final production chamber at the factory immediately prior to being sent into the world.

**Reproduction.** Sophontoids are incapable of individual reproduction. Some sophontoids are the product of a profit-making organization with little access to, or knowledge of, their native factory. Other sophontoids have acquired access to their factory and control its central reproduction policies.

Sophontoids may have external gender characteristics, or they may lack any specific gender characteristics.

Semi-organics cannot be cloned using normal processes; their organic components may be cloned; distinct components may have distinct genetic structures, each of which must be cloned separately; finally, non-organic components must be manufactured and added.

**Injuries and Healing**

Sophontoids can be injured in the same way as their pattern sophont.

Sophontoids have an outer covering (skin) capable of healing. Organic internal organs can also heal. Non-organic components which are damaged require repair or replacement.

The sophontoid brain is a manufactured semi-organic brain:

**Identifying Marks and Control Codes**

Local law level and culture determine the markings and control codes for sophontoids.

**Markings.** Markings are applied at the factory. Sophontoids have markings which allow them to be identified as sophontoids. Batch sophontoids have one obvious marking and one unobtrusive marking (as a backup or

confirmation). Premium sophontoids, intended to blend more fully into society, have one unobtrusive marking.

For example, a sophontoid may be created to eat marginal foodstuffs (spoiled foods, bulk cellulose, common non-food plants), or specially formulated foods (spiked with exotic chemicals). A sophontoid may require biological process supplements (to support or drive internal processes).

**Control Codes.** Control codes are installed at the factory. Every sophontoid has an installed control code. Although the original intent was that such codes be secret, integration of sophontoids into society means that each sophontoid probably knows the control code that applies to him.

**SOPHONTOID IDENTIFYING MARKINGS**

| | <applies to skin> | |
|---|---|---|
| Flux | Obvious Markings | Unobtrusive Markings |
| - 5 | Spots Overall | Tattoo- Hidden |
| - 4 | Conspicuous Patterns | Tattoo- Inconspicuous |
| - 3 | Blotches | Minor |
| - 2 | Multiple Marks | Internal RFID |
| - 1 | Prominent Mark | Internal Scannable Chip |
| 0 | Pigmented Skin | Local ID marking |
| +1 | Patterned | Verbal Trigger |
| +2 | Subtly Patterned | Touch Point Disable |
| +3 | Subtly Colored | Scent Trigger |
| +4 | Unpigmented | Visible Pattern Trigger |
| +5 | Transparent Skin | IR Hotspot |

A Batch Sophontoid has BOTH one Obvious Marking and one Unobtrusive Marking.

A Premium Sophontoid has one Unobtrusive Marking.

**SOPHONTOID CONTROL STRUCTURES**

| Flux | Non-Standard Behavior or Requirement | When |
|---|---|---|
| - 5 | Accumulated Waste Residue Flush | annually |
| - 4 | Organic Chemical Supplements | daily |
| - 3 | Dietary Supplements | daily |
| - 2 | Hormone Supplements | monthly |
| - 1 | Eats spoiled or substandard foods | |
| 0 | Eats a specific geneered plant | |
| +1 | Internal Energy Cell Recharge | daily |
| +2 | Internal Energy Cell Recharge | weekly |
| +3 | Tailored scent input | weekly |
| +4 | Coded Strobe Light Incapacitation | |
| +5 | Coded Sound Pattern Incapacitation | |

**CREATING SOPHONTOIDS**

Sophontoids are created by the factory according to a model or pattern which details the values for its characteristics. Typically, sophontoids are created in “batches” of about 100. Sophontoids from the same batch have a special bond and consider themselves brothers (or sisters or sibs).

Creating a sophontoid involves determining what values best emulate the pattern.

**Available Characteristics.** The sophontoid manufacturing process creates characteristics C1 C2 C3 and C4. Characteristics C5 and C6 are “empty” and set to 0.

**The Process.** The producing factory creates a pattern or master plan for the sophontoid characteristics where the sum of the characteristics C1 C2 C3 C4 equals 3.5 times the dice rolled for those characteristics in the sophont pattern.

For example, a factory chooses to produce a laborer android based on a human. A human character rolls for C1 C2 C3 C4 a total of 8 dice ( = 8 * 3.5 ) = 28 points. The factory allocates Str= 10 Dex =6 End = 8 Int=4. Edu and Soc remain at zero.

**Batch Produced Sophontoids**

The factory routinely produces sophontoids in batches of about 100 based on market orders or perceived market needs.

Identify the market need for the sophontoid (for example, laborer, servant, soldier).

Determine the total number of dice rolled for characteristic C1 C2 C3 C4 for the sophont. Multiply that number by 3.5 for the total points available for characteristics. Distribute those points among the characteristics based on the market need.

Select one or more skills ( based on market need ) and allocate a total of 12 skill levels among those skills.

Determine the identifying markings and control codes for the batch and apply them to the sophontoids.

**Premium Sophontoids**

The factory produces high quality sophontoids in batches of about 10 based on specific orders.

Identify the market need for the sophontoid (for example, astrogator, librarian, bodyguard).

Determine the total number of dice rolled for characteristic C1 C2 C3 C4 for the sophont. Multiply that number by 3.5 and add 10 for the total points available for characteristics. Distribute those points among the characteristics based on the market need.

Select one or more skills ( based on market need ) and allocate a total of 18 skill levels among those skills.

Determine the identifying markings and control codes for the batch and apply them to the sophontoids.

**Randomly Encountered Sophontoids.** Any randomly generated sophont can conceivably be a sophontoid.

# Genetics

The characteristics of **Traveller** characters have both a generated component and an inherited component. The inherited (or genetic) component can be passed from generation to generation by characters.

The inherited components (the genes) of characteristics enables a player to create characters in other historical milieux with demonstrable links to the player's primary character. They also allow characters to create children through which they can continue role-playing after the demise of the original character. Genetics also allows the creation of clones.

**IMPORTANT TERMS**

The following terms are important for the understanding of genetics.

**Gene.** The individual inherited value for a genetic characteristic. Human Strength is generated with 2D: the first die (1-6) is the inherited part of Strength and that value is the Gene. The second die (1-6) is the developed Strength based on experience and environment.

A normal Gene has a value from 1-6. Higher and lower values can occur though mutation or geneering.

A Gene with a value of 0 is *defective*.

**Genetic Characteristic.** A characteristic which has some basis in genetics. Strength is a genetic characteristic because part of it is determined by genetics; Education is NOT a genetic characteristic because genetics does not determine Education.

**Genetic Profile.** The initial letters of the characteristics for a species. For humans (with Str Dex End Int Edu Soc) this is SDEIES. One Genetic profile is identical to another Genetic Profile if both have identical Genetic elements; it disregards non-genetic elements.

For example, SDEIES and SDEITC are identical. SAVIIC and SAVIIS are identical. SGSITS and SGSIIS are not identical.

**DNA.** A variation of the UPP which shows the values for Genes. / Inherited D. Non-genetic characteristic positions are shown as X.

For identification, the DNA string is preceded by the letters DNA.

Since some sophont genetics are based on variants of DNA, the string may instead be preceded by 1NA, 2NA, 3NA, 4NA, 5NA or 6NA (the number indicating the number of participating genders for the species), or MNA (= 1NA), DNA (=2NA), or TNA (=3NA). For convenience, the term DNA also means all of the alternative terms.

For example, the digit in the C1 position of DNA is the Strength Gene.

**Inherited D.** The portion of a characteristic which is determined by genetics. Also called a Gene.

**Generated D.** The portion of a characteristic which is not a Gene or Inherited D.

**GENETIC TERMS**

| | C1 | C2 | C3 | C4 | C5 | C6 |
|---|---|---|---|---|---|---|
| Genetic Profile= | S | D | E | I | E | S |
| DNA- | 3 | 2 | 4 | 6 | X | X |
| Die Rolls= | 4 | 6 | 5 | 4 | 5+6 | 6+6 |
| UPP= | 7 | 8 | 9 | A | B | C |

This table shows Humans.

**THE BASIC PRINCIPLES OF GENETICS**

Characteristics are generated with one or more dice. For humans, Strength is generated with 2D. For some non-humans, Strength may be generated with 1D, 2D, 3D, or even 4D.

The first D rolled for a genetic characteristic is the **Gene** for that characteristic. The remaining D for the characteristic represent training, experience, and environment.

For example, human Strength characteristic is generated using 2D. 1D is the genetic component inherited from generation to generation. The other 1D is the generated component and rolled on 1D when the character is created.

For example, human Eneri Dinsha inherits a Strength gene =4 from his father. When Eneri is generated, the player rolls 1D =3 for Strength =7.

**Creating Characters Without Using Genetics**. When creating characters (for example for the first time) without genetics, all the required dice are rolled normally. The Genes can be determined later or as necessary through Genetic Testing.

**Genes.** Genes can be inherited from parents and passed on the offspring. Genes are used when creating clones.

**Mutation and Genetic Engineering.** Each Gene is originally generated with 1D. It may increase or decrease as a result of mutation or genetic engineering. A Gene with a value of 0 is *defective*.

**The Genetic Characteristics.** A Genetic Characteristic is genetically inheritable.

The Physical Characteristics C1 C2 and C3, Intelligence C4 and Instinct C5 are genetic characteristics. Caste C6 may (or may not) be genetic.

Education C5, Training C5, Social Standing C6, and Charisma C6 are not genetic.

**GENETIC CHARACTERISTICS**

| | Genetic | | | Non-Genetic | |
|---|---|---|---|---|---|
| C1 | Strength | | | | |
| C2 | Dexterity | Agility | Grace | | |
| C3 | Endurance | Stamina | Vigor | | |
| C4 | Intelligence | | | | |
| C5 | Instinct | | | Education | Training |
| C6 | Caste* | | | Social | Charisma |

* Caste may be Genetic or Non-Genetic.

If the character has Caste and it is marked Genetic for that species (in a detailed description of that sophont), it is Genetic; otherwise, it is not.

**DNA (or MNA, and others)**

Genes for a character are recorded as DNA (a six-digit UPP string preceded by DNA- (non-genetic components are shown as X). For example, human Eneri Dinsha has DNA 4456XX.

**Alien DNA.** The name DNA (Di- ribo Nucleaic Acid) refers to the double helix self-replicating molecule. DNA is a double because it has components supplied by two genders.

If genetic components are supplied by more than (or less that) two genders, then the proper name for DNA changes. For ease of reference, DNA in a general sense includes all the other possible NA structures.

The six-gendered Plexxan would show its Gene sequence as 6NA-5346X9 (note the 9 in position C6 indicates the Plexxan have a genetic Caste structure).

**HUMAN AND ALIEN DNA**

| Gender Structure | Genetic Component |
|---|---|
| Solitaire | MNA or 1NA |
| Dual | DNA or 2NA |
| FMN* | DNA or 2NA |
| EAB | TNA or 3NA |
| Group** | 1NA 2NA 3NA 4NA 5NA or 6NA |

* because the Neuter does not participate.

** depending on the number of participating Genders.

**1D Characteristics.** If Sophont Generation dictates that a characteristic is rolled with 1D, then all of that value is the Gene, and there is no Generated D.

**Gene Contributions By Non-Humans.** If the parents are non-human sophonts, then variations are possible based on Gender.

For any gender with two or more components, the appropriate Gene is selected from the available values of all possible parents. However, Neuter Gender is always ignored and cannot contribute a Gene. Bearer Gender can contribute a Gene (during the bearing process). Gender One in the Solitaire Gender Structure always contributes all of the Inherited D.

**DETERMINING THE VALUES FOR GENES**

The values for Genes can be determined during characteristic generation, or later through Genetic Testing.

**During Character Creation.** Ideally, when a new character is created, the first D rolled is the Gene and should be recorded on the character's Genetics Card.

For example, when the human character Gustav Winkhoek is generated, the player rolls 2D for Str producing 3 and 4. The first D rolled (3) becomes the Strength Gene. When sophont Plexxan is generated (with 3D for Str), the player rolls 5, 4, and 3. The first D rolled (5) is the Strength Gene.

**Genetic Testing.** If Genes were not noted during characteristic generation, they may be determined through testing.

Genetics Testing is a formal situation under the guidance of a referee, the player rolls 1D for each Genetic characteristic and enters the values on the Genetics Card. The referee takes care to avoid contradictions (such as: the Gene becoming greater than the present characteristic).

**Obvious Genetic Values**

Some genetic values can be deduced. Some examples are shown below, and other values can be logically deduced as well.

**Characteristic Created With 1D.** If a characteristic is created with 1D, then its entire value is a Gene.

**2D Value = 2.** The Gene = 1.

**2D Value = 12.** The Gene = 6.

**3D Value = 3.** The Gene = 1.

**3D Value = 18.** The Gene = 6.

**CREATING HUMAN OFFSPRING**

When two Human characters mate and generate a child, that child character randomly acquires the Gene of a characteristic from one of his parents.

For example, two human parents marry and have a single child. For each of Strength, Dexterity, Endurance, and Intelligence, a random roll determines if the Gene comes from the father or the mother. In this example, assume the roll result alternates father and mother as the donor.

| Mother (Parent1) | Father (Parent2) |
|---|---|
| Aia Restef | Gustav Windhoek |
| DNA-3456XX | DNA-6543XX |

Child
Stephan Windhoek
DNA-6446XX

On this genetic base, the player for Stephan Windhoek rolls for the complete UPP. Since humans roll 2D for characteristics, Genes are determined by genetics; the Generated D is rolled with 1D by the player to create the final UPP.

**Creating Parents.** It is also possible to create parents for an existing character. Given an existing DNA-, random rolls are used to determine which Genes were received from which parent. Those which were not genetically determined are created by random die rolls.

**Recording Genes.** The parentage of DNA can be marked with subscripts. For example, Stephan Windhoek's DNA can be written DNA-$6_2 4_1 4_2 6_1$XX (his mother is Parent1 and provides subscript-1; his father is Parent2).

**CREATING SOPHONT OFFSPRING**

When the appropriate number of sophont characters mate and generate a child, that child character randomly acquires the Gene of a characteristic from one of his parents.

**Excluded Parents.** A Neuter does not participate in the reproductive process and he is excluded from gene contribution.

**Contributing Genes**

Each eligible parent has the opportunity to contribute each Gene. Assign to each parent a number from 1 to 6 corresponding to the individual's gender. Roll 1D to determine the contributing parent; if the die roll does not correspond to a parent, reroll.

**Some Genes are Gender-Linked.** They are automatically transmitted to Same-Gender children; they are never transmitted to Different-Gender children.

**Some Genes are Caste-Linked.** They are automatically transmitted to Same-Caste children; they are never transmitted to Different-Caste children.

**HOW MANY OFFSPRING?**

The number of children produced by a sophont family can vary widely, and depends greatly on the number of genders the stability of the population, and the general and infant mortality rates.

**HOW MANY OFFSPRING?**

| | Genders* | | | | | |
|---|---|---|---|---|---|---|
| Flux | 1 | 2 | 3 | 4 | 5 | 6 |
| -5 | Child | Child | Child | Child | Child | Child |
| -4 | Child | Child | Child | Child | Child | Child |
| -3 | Child | Child | Child | Child | Child | Child |
| -2 | Child | Child | Child | Child | Child | Child |
| -1 | Child | Child | Child | Child | Child | Child |
| 0 | Child | Child | Child | Child | Child | Multiple |
| +1 | Child | Child | Child | Child | Multiple | Multiple |
| +2 | Child | Child | Child | Multiple | Multiple | Multiple |
| +3 | Child | Child | Multiple | Multiple | Multiple | Multiple |
| +4 | Multiple | Multiple | Multiple | Multiple | Multiple | Multiple |
| +5 | Multiple | Multiple | Multiple | Multiple | Multiple | Multiple |

* All Genders, not participating" Genders.

Multiple= 1D infants.

**MUTATIONS**

Genes can change due to mutations. Mutations can make Genes Dominant or Recessive, or increase or decrease their values.

Roll on the Mutations Table during UPP creation for each possible Gene. Thus, mutation may convert a parent's Gene from an existing Recessive to Standard and make it available for contribution (although it may not ultimately be selected).

Dominant applied to a Recessive makes it Standard. Recessive applied to a Dominant makes it Standard.

A Gene can be reduced to zero and represents a defective Gene or genetically transmitted disease. Genes can be increased above 6.

**Other Effects:** Dominant Genes are always selected over Standard or Recessive Genes. If more than one Dominant Gene is available from parents, one of the Dominants is selected randomly.

Recessive Genes are never selected if Standard or Dominant Genes are available. If only Recessive is available, one of those available is selected randomly.

**Mutation Risk.** Individuals subject to high levels of radiation or hazardous chemicals are considered High Risk and a have a greater chance of mutation.

High Risk individuals are those who have been exposed to situations which have a higher likelihood of inducing mutations. They include Engineers (because of long-term exposure to drive radiation), non-natives on worlds with tainted atmospheres, and non-natives on worlds with high energy stars (type O B A and F).

**MUTATION TABLE**

| Flux | Standard | High Risk | Solitaire Gender |
|---|---|---|---|
| -5 | - 1 | - 2 | Recessive |
| -4 | - 1 | - 2 | - 1 |
| -3 | Recessive | - 1 | - 1 |
| -2 | | Recessive | |
| -1 | | | |
| 0 | | | |
| +1 | | | |
| +2 | | Dominant | |
| +3 | Dominant | +1 | +1 |
| +4 | +1 | +1 | +1 |
| +5 | +1 | +2 | Dominant |

This table is used for each Gene when it is transmitted to an offspring.

Solitaire gender rolls on the Solitaire column in addition to the Standard or High Risk column.

**GENEERING**

Genes can be edited using a variety of medical techniques. Gene editing (Geneering) is one rationale behind Acquired Characteristic Increases in Character Generation.

For a variety of reasons (including game balance), edited genes are Recessive.

Character generation increases in characteristics which meet this criterion: an individual who receives genetic change in C1, C2, C3, C4, or Instinct has that Gene marked Recessive. That does not prevent such a Recessive from later becoming Standard or even Dominant through various mutations.

**CLONING**

A clone is an individual created using the Genes from one single parent. A clone is the same gender (and genetic Caste) as the parent.

Although a clone begins with the Genes of the one parent, it then rolls Generated D normally. Thus, several clones with the same Genes may exhibit a variety of final UPPs.

**CROSS SPECIES INTERACTIONS**

There is no common ancestor for all life in the universe. Life has evolved independently from the primordial soup on many, many worlds. Nevertheless, parallel evolution has produced life forms which are similar in biochemical and genetic structure.

There are, therefore, many different possible structures for genetic transmission of inherited characteristics. The human structure is DNA. Other conceivable structures involve alternate combinations of amino acids, triple helices, and even quadruple helices.

**The Genetic Profile.** The initial letters of the characteristics for a species create the Genetic Profile. The human Genetic Profile is SDEIES. There are 81 different possible combinations in the Profile, representing the 81 possible Genetic processes governing life forms.

Many others are also possible (envisioning even other details of Characteristics), but they are omitted from this

discussion.

**Alien versus Similar.** Two organisms or species which share the same Genetic Profile are **similar**. Two organisms or species which have different Genetic Profiles are **alien**.

**Interspecies Fertility.** Members of two distinct species are inter-fertile (and can create children) if they both have the same Genetic Profile and the same Nucleic Acid structure (ie, DNA, 4NA, etc). The result of interspecies fertility is **chimera**.

Interspecies fertility creates offspring which share some of the details of each species, including senses, body structure, and other elements. In the majority of cases, such offspring is non-viable. When it is viable, it is often sterile. When viable and non-sterile, it breeds true with other viable, non-sterile.

**Bacterial or Microbial Infection.** Disease bacteria (and other microbes) can infect a species if they both have the same Genetic Profile. The result is a disease for the victim organism. It follows that a species is immune to infection from a bacteria that does not share the same Genetic Profile.

Non-infectious disease can be caused by alien bacteria. The bacteria do not attack the victim organism, but its presence produces toxins which burden the victim.

**Viral Infection.** A virus can infect a species if they both (the virus and the species) have the same Genetic Profile. Virus with an alien Genetic Profile cannot infect an organism.

**INHERITANCE OF C5**

The Learning characteristics Education and Training are not inherited. Each is generated individually.

Instinct is an inherited characteristic.

**INHERITANCE OF THE SOCIAL CHARACTERISTIC**

The Social characteristics can be inherited, but they are transmitted socially rather than genetically.

**Social Standing.** The children of parents with Social Standing inherit a value one less than the highest Social Standing held by the parents. Upon the death of the higher (or highest) Social Standing parent, one child inherits that parent's Social Standing.

**Charisma.** Charisma is not inherited. Each child generates an individual Charisma.

**Caste.** Caste is not inherited. Each child generates Caste individually.

**INHERITANCE OF MONEY**

Children routinely inherit the assets of their parents when the parents die. The details of inheritance are prescribed by local culture, law, and the Referee.

**THE GENETIC PROFILES**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 01 SAEIEC | 10 SASIEC | 19 SAVIEC | 28 SDEIEC | 37 SDSIEC | 46 SDVIEC | 55 SGEIEC | 64 SGSIEC | 73 SGVIEC |
| 02 SAEIEK | 11 SASIEK | 20 SAVIEK | 29 SDEIEK | 38 SDSIEK | 47 SDVIEK | 56 SGEIEK | 65 SGSIEK | 74 SGVIEK |
| 03 SAEIES | 12 SASIES | 21 SAVIES | **30 SDEIES** | 39 SDSIES | 48 SDVIES | 57 SGEIES | 66 SGSIES | 75 SGVIES |
| 04 SAEIIC | 13 SASIIC | 22 SAVIIC | 31 SDEIIC | 40 SDSIIC | 49 SDVIIC | 58 SGEIIC | 67 SGSIIC | 76 SGVIIC |
| 05 SAEIIK | 14 SASIIK | 23 SAVIIK | 32 SDEIIK | 41 SDSIIK | 50 SDVIIK | 59 SGEIIK | 68 SGSIIK | 77 SGVIIK |
| 06 SAEIIS | 15 SASIIS | 24 SAVIIS | 33 SDEIIS | 42 SDSIIS | 51 SDVIIS | 60 SGEIIS | 69 SGSIIS | 78 SGVIIS |
| 07 SAEITC | 16 SASITC | 25 SAVITC | 34 SDEITC | 43 SDSITC | 52 SDVITC | 61 SGEITC | 70 SGSITC | 79 SGVITC |
| 08 SAEITK | 17 SASITK | 26 SAVITK | 35 SDEITK | 44 SDSITK | 53 SDVITK | 62 SGEITK | 71 SGSITK | 80 SGVITK |
| 09 SAEITS | 18 SASITS | 27 SAVITS | 36 SDEITS | 45 SDSITS | 54 SDVITS | 63 SGEITS | 72 SGSITS | 81 SGVITS |

| C1 | C2 | C3 | C4 | C5 | C6 | |
|---|---|---|---|---|---|---|
| **S= Str** | A= Agility | **E= Endurance** | **I= Intelligence** | **E= Education** | C= Charisma | **Bold** = |
| | **D= Dexterity** | S= Stamina | | I= Instinct | K= Caste | Human. |
| | G= Grace | V= Vigor | | T= Training | **S= Social Standing** | |

**GENDER SYMBOLS**

| **Z*** | **X** | **C** | **V*** | **B** | **N** | **M*** | **<** | **>** | **?** | |
|---|---|---|---|---|---|---|---|---|---|---|
| Solo | Gender Two | Gender Three | Gender Four | Gender Five | Gender Six | Gender Alt One | Gender Alt Two | Gender Alt Three | Strange | Gender Symbols |
| Female | Male | Neuter | Egg Donor | Activator | Bearer | Gender Alt Four | Gender Alt Five | Gender Alt Six | Bizarre | |

Gender symbols are used when necessary. The symbols correspond the standard sophont genders FMN EAB 123456. Alt-123456 may be used when necessary. This font is T5-9000 Symbols.ttf. The upper row is CAPS; the lower row is lower case.

# Genetics

The **Traveller** Genetic Data Card is used to record the genetic information for a character in support of reproduction, ancestry research, and cloning.

Genetics

**GENETICS**

Family Name | Racial Longname | Genetic Profile

| | Individual Name | Gender | 1FE | Individual Name | Gender | 2MA |
|---|---|---|---|---|---|---|
| UPP Current | C1 C2 C3 C4 C5 C6 | | | C1 C2 C3 C4 C5 C6 | | |
| UPP Genetic | C1 C2 C3 C4 C5 C6 | | | C1 C2 C3 C4 C5 C6 | | |
| Dominance | | | | | | |

| | Individual Name | Gender | 3NB | Individual Name | Gender | 4 |
|---|---|---|---|---|---|---|
| UPP Current | C1 C2 C3 C4 C5 C6 | | | C1 C2 C3 C4 C5 C6 | | |
| UPP Genetic | C1 C2 C3 C4 C5 C6 | | | C1 C2 C3 C4 C5 C6 | | |
| Dominance | | | | | | |

| | Individual Name | Gender | 5 | Individual Name | Gender | 6 |
|---|---|---|---|---|---|---|
| UPP Current | C1 C2 C3 C4 C5 C6 | | | C1 C2 C3 C4 C5 C6 | | |
| UPP Genetic | C1 C2 C3 C4 C5 C6 | | | C1 C2 C3 C4 C5 C6 | | |
| Dominance | | | | | | |

**Card NN**

**SPECIAL GENE CODES**

| Code | Description | Explanation |
|---|---|---|
| + | Dominant | Dominant. selected before Standard. |
| [ ] | Blank | Standard. selected before Recessive. |
| - | Recessive | Recessive. selected if no other choice. |
| G | Gender-Linked | Automatically transmitted to same gender children; never transmitted to different gender children. |
| K | Caste-Linked | Automatically transmitted to same caste children. |
| X | Not Genetic | This characteristic is not genetic. |

**GENETIC CHARACTERISTICS**

**INHERITABILITY**

| | Genetic | | | Possibly | Non-Genetic | |
|---|---|---|---|---|---|---|
| C1 | Str | - | - | - | - | - |
| C2 | Dex | Gra | Agi | - | - | - |
| C3 | End | Vig | Sta | - | - | - |
| C4 | Int | - | - | - | - | - |
| C5 | Ins | - | - | - | Edu | Tra |
| C6 | | | | Cas | Soc | Cha |

**MUTATION TABLE**

| Flux | Standard | Solitaire Gender | High Risk |
|---|---|---|---|
| - 6 | - 2 Dominant | - 2 Dominant | - 6 Recessive |
| - 5 | - 2 C-Linked | - 2 C-Linked | - 5 Recessive |
| - 4 | - 1 G-Linked | - 1 | - 4 Recessive |
| - 3 | Recessive | - 1 | - 3 Recessive |
| - 2 | - | Recessive | - 2 Recessive |
| - 1 | - | - | - 1 |
| 0 | - | - | - |
| +1 | - | - | - |
| +2 | - | Dominant | - |
| +3 | Dominant | +1 | - |
| +4 | +1 G-Linked | +1 | +1 |
| +5 | +1 C-Linked | +2 C-Linked | +2 Dominant |
| +6 | +2 Dominant | +2 Dominant | +3 Dominant |

**G-Linked.** The Gene becomes Gender Linked.

**C-Linked.** The Gene becomes Caste Linked (ignore if the species has no Caste).

**Recessive.** The Gene becomes **Recessive** (if the Gene is currently Dominant, it becomes Standard).

**Dominant.** The Gene becomes **Dominant**. If the Gene is currently Recessive, it becomes Standard).

**+N. - N.** The Gene value is increased or decreased.

This table is used for each Gene when it is transmitted to an offspring.

Solitaire gender rolls on the Solitaire column in addition to the Standard or High Risk column.